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THE ETIOLOGY OF DENGUE FEVER *

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WASHINGTON, D. C.

The recent discovery by Noguchi [1] of the probable cause of yellow fever, a spirochete which he has named *Leptospira icteroides,* renews interest in the etiology of dengue fever, an infection that is apparently very closely related to yellow fever in many of its etiologic aspects; and it is not at all improbable that the application of the cultural methods used by Noguchi in the discovery of *Leptospira icteroides* in the study of this disease will result in the demonstration of a similar causative organism.

In view of the reported prevalence of dengue fever in epidemic form in Alabama, I believe that a summary of what is at present known regarding its etiology will prove of interest to the medical profession, especially to physicians in regions where the disease occurs and to workers in tropical medicine. The more recent contributions to our knowledge of the subject have been published in medical journals that are not readily accessible to most practitioners, and the fact that some of the most valuable work on the subject was reported during the busy days of the World War and the period of reconstruction has resulted in failure to appreciate its importance in the scientific study of the disease.

Dengue fever, while a disease attended with practically no mortality in the young and healthy, is of considerable military importance, in that it spreads rapidly through a command, incapacitating large numbers of soldiers for periods of between two and four weeks, while in civil life the large percentage of those contracting the disease among those exposed renders it of much economic importance.

Prior to the researches of Graham, and of Ashburn and myself, but little was known regarding the etiology of dengue. It was generally considered a highly contagious disease which spread rapidly by direct contact, and its clinical resemblance to mild cases of yellow fever, as well as its seasonal occurrence, which coincided with that of the latter disease, gave rise to confusion in diagnosis and to the opinion that, in some way, these infections were related.

Although Graham was the first to present experimental evidence that dengue is transmitted by mosquitoes, the idea that it might be so transmitted was hinted at in some descriptions of the disease published prior to Graham's work, and almost all writers called attention to its occurrence at the same time as yellow fever in regions where the latter disease occurred in endemic or epidemic form, while many investigators mentioned the great resemblance in the manner of spread of the two infections, during an epidemic. Furthermore, a perusal of the writings of medical men well acquainted with the disease, prior to the more recent work on the subject, will convince the most skeptical that while dengue was considered by all as an infectious disease, there were many who doubted its contagiousness, and who were inclined to believe that some peculiar method of transmission was involved in its causation.

Our present knowledge regarding the etiology of dengue we owe to the work of Graham, Bancroft, Ashburn and Craig, and Cleland, Bradley and McDonald, and the result of their work will be considered somewhat in extenso.

GRAHAM'S RESEARCHES

In 1903, Graham [2] published the results of his researches regarding the etiology of dengue fever, and this publication had the effect of stimulating considerable work on the subject, owing to the importance of his conclusions. Graham's work was done at Beirut, Syria, and he claimed that he had discovered the parasite causing the disease, and had proved that it is transmitted by *Culex fatigans,* a common species of mosquito.

Graham examined the blood in more than 100 cases of dengue, but in his report he does not state in how many he found the supposed parasite, although he does state that he was not successful in finding it in stained preparations of blood. In fresh preparations he states that he found an unpigmented, plasmodium-like organism within the red blood corpuscles, which he regarded as belonging to the Protozoa. According to his description the parasite appears at first within the red blood corpuscle as a small hyaline dot or rod, actively motile, and constantly changing its position within the infected cell. It gradually increases in size and finally fills the cell, which may rupture, when the parasite may be found in the blood plasma, where it rapidly degenerates. Graham did not describe any method of reproduction nor did he observe any sporulating forms of the parasite in the blood. At no stage in the growth of the organism was pigment observed.

Believing that mosquitoes were responsible for the transmission of the disease, Graham endeavored to find developmental stages of this organism in mosquitoes that had bitten infected individuals. He examined mosquitoes, which he identified as *Culex fatigans* and which had bitten dengue patients, and in the blood contained in the stomach of the insects he reported that

* From the Division of Laboratories, Army Medical School.

1. Noguchi, Hideyo: J. Exper. Med. **19**: 565 (June) 1919.

2. Graham, H.: J. Trop. Med. **6**: 209, 1903.

he found the same parasite as in the blood of infected individuals, as long as five days after the insects had bitten. Developmental changes similar to those occurring in the blood of man were noted, but he did not find any evidence of sexual forms. In the salivary glands of mosquitoes forty-eight hours after biting dengue patients, Graham states that he found the spores of this parasite, and he asserts that in one experiment he produced a very severe case of dengue by the subcutaneous inoculation of a healthy man with a peptonized saline suspension of the salivary glands of a mosquito that had bitten a dengue patient twenty-four hours previously.

In his first experiments regarding the mosquito transmission of dengue, Graham used four volunteers, who slept night after night beneath mosquito-nets containing mosquitoes that had bitten dengue patients. In one of these volunteers the disease developed in four days from the date of the first exposure to the insects; in one, in five days, and in one in six days after exposure, while the remaining volunteer escaped infection. During the experiments the men remained at their homes, where no other cases of dengue occurred either before or after the experiments. However, as a very severe epidemic of dengue was present in Beirut at the time, the possibility of the infection of these volunteers in some other way could not be entirely eliminated, and in order to remove this source of criticism, Graham performed his second series of experiments.

In these experiments he allowed mosquitoes, which were identified as *Culex fatigans,* to bite infected individuals, and then took them to a mountain village where no cases of dengue had occurred. Here he allowed them to bite two volunteers living in different localities, who were not permitted to leave the mosquito-nets containing the infected insects until sufficient time had elapsed to decide the experiment. One of these men developed dengue in a severe form four days after being bitten, and the other in five days. The infected insects were then killed, and the men liberated from the mosquito-nets; no further cases occurred in the village. Graham states that the mosquitoes he experimented with were *Culex fatigans* and that, at the time of the epidemic in Beirut, great numbers of this species were noted. He also stated that the insects were allowed to bite the healthy volunteers within a short time after biting infected individuals.

The results of Graham's researches may be thus summarized: He described a parasite, belonging apparently to the Protozoa, which he stated he found in the red blood corpuscles of dengue patients; this parasite he found also in the stomach of mosquitoes that had bitten dengue patients, and spores of the parasite in the salivary glands of such mosquitoes; the disease was produced in one instance in man by the subcutaneous injection of a suspension of the salivary glands of an infected mosquito; typical attacks of dengue were produced in man by the bites of mosquitoes that had fed on dengue patients, the species of mosquito used being identified as *Culex fatigans.* Of the six healthy men bitten, five developed the disease, two of them in a region where no other cases had occurred; the period of incubation in these cases varied from four to six days, two of the experimental subjects developing the disease in four days, two in five days, and one in six days. That no developmental cycle of the causative parasite occurred in the infected mosquitoes, similar to that of the malaria plasmodia in these insects, was evidenced by the fact that the mosquitoes were allowed to bite the experimental subjects within a few hours, at most, after biting dengue patients, and that such insects were capable of transmitting the infection.

BANCROFT'S RESEARCHES

In 1906, Bancroft[3] performed some experiments regarding the mosquito transmission of dengue, using instead of *Culex fatigans,* the yellow fever mosquito, *Stegomyia fasciata.* In his first experiment he used a number of mosquitoes captured in a room in which there was a patient suffering from dengue which had bitten the patients, as evidenced by the presence of blood in the insects. These mosquitoes were kept for twelve days, at the end of which time twenty-five of them were allowed to bite a volunteer. On the sixth day after being bitten a typical attack of dengue developed, the patient being taken suddenly ill with a severe chill and pains in the back and limbs, the disease lasting for several days.

Bancroft then reared mosquitoes of this species and allowed them to bite a person with dengue on the third day of the disease. After keeping these insects fifteen days he allowed them to bite two volunteers, but both of these experiments resulted negatively.

In a fourth experiment, Bancroft used fifteen mosquitoes of this species that had bitten a dengue patient in the second day of the disease. After a period of ten days these mosquitoes were allowed to bite a volunteer, who developed a mild attack of the disease, five days after being bitten.

In his final experiment, Bancroft allowed fifteen stegomyiae that had bitten a dengue patient in the second day of the disease, seventeen days previously, to bite a healthy volunteer, but this experiment gave a negative result.

Although a careful search was made by Bancroft for the parasite described by Graham as occurring in the stomach and salivary glands of infected mosquitoes in the mosquitoes that were used in his experiments, he was unable to demonstrate its presence.

Bancroft's researches may be thus summarized: Typical attacks of dengue fever were apparently produced in two of five healthy volunteers by the bites of infected mosquitoes identified as *Stegomyia fasciata;* in both successful cases the mosquitoes were infected by biting dengue patients during the second day of the disease; in one successful experiment the mosquitoes had been kept for twelve days after biting the dengue patient, and in the other, for fifteen days; the period of incubation in one successful case was five days, and in the other, six days; he was unable to confirm the presence of the parasite described by Graham in his infected mosquitoes or in the blood of dengue patients.

Bancroft's work is especially important because of his demonstration that the yellow fever mosquito, *Stegomyia fasciata,* apparently transmits dengue fever. He did not investigate the transmission of the disease by *Culex fatigans,* as claimed by Graham.

ASHBURN AND CRAIG'S RESEARCHES

The occurrence of an extensive epidemic of dengue fever at Fort William McKinley, Rizal, Philippine Islands, in 1908, enabled Colonel (then Captain) P. M. Ashburn, Medical Corps, U. S. Army, and myself[4] to make some experimental observations on the etiology

3. Bancroft, T. L.: Australasian M. Gaz. **25**: 17, 1906.
4. Ashburn, P. M., and Craig, C. F.: Philippine J. Sc., Sec. B **2**: 71, 1907. J. Infect. Dis. **4**: 440, 1907.

of this disease. During this epidemic more than 800 cases of dengue occurred among the commands stationed at Fort McKinley, and 128 of these patients were transferred to our dengue hospital at Manila, in which city the disease was not present at the time we made our experiments.

We first examined the blood of a large number of our patients microscopically, in order to prove or disprove the claims of Graham regarding the presence of a causative parasite in this fluid. Both fresh and stained preparations of blood were examined, special attention being paid to the possible presence of a spirochete, as we were inclined to believe that the disease might be caused by such an organism. Despite the most careful examinations, using the best methods of staining and studying the blood at that time available, and examining preparations taken at every stage of the disease, especially during the first two days and during the terminal rise in the fever, we were forced to the conclusion that there does not occur in the blood of patients suffering from dengue fever any organism demonstrable by the methods used that could be considered as the cause of the disease. We were therefore unable to confirm Graham's work regarding the presence of a causative parasite in the blood. We determined that dengue is not accompanied by anemia and that the characteristic change in the blood appears to be a leukopenia, the polymorphonuclear leukocytes being reduced in number, while the small mononuclear leukocytes are markedly increased.

In addition to the microscopic examination of the blood, we made blood cultures in twenty cases, in eight in citrated blood obtained at various periods of the disease, and in twelve in nutrient broth; but in no instance was any organism recovered that could be regarded as bearing a causative relation to the disease.

Having demonstrated that, with the methods available, no parasite could be found in the blood of dengue patients, either microscopically or culturally, and as the disease is not dangerous to life in young, healthy subjects, we determined, if possible, to prove the presence or absence of the infective agent in the blood by inoculating healthy volunteers with the blood of dengue patients. A call for volunteers was issued, and no difficulty was experienced in securing all the volunteers we could use from among the soldiers of the U. S. Army stationed in Manila.

We inoculated eleven of the fourteen volunteers we used with unfiltered blood from dengue patients, in the third and fourth days of the disease, and of these, seven developed typical attacks of the disease, the longest incubation period being seven days, and the shortest two and a half days, the average period of incubation being approximately four days. Fifteen minims (1 c.c.) of the unfiltered blood was injected intravenously in all of the successful experimental cases. In one case, in which one-half minim (0.0325 c.c.) of the blood was injected intravenously, the result was doubtful. We concluded from these experiments that the cause of dengue is present in the blood during the first three or four days of the disease, and that the intravenous injection of the blood produces the disease in susceptible individuals.

Having proved that the unfiltered blood of dengue patients was capable of producing dengue when injected intravenously, we turned our attention to the possible filtrability of the virus. Blood from patients suffering from the disease was rapidly defibrinated, diluted with an equal amount of physiologic sodium chlorid solution, and filtered through a Lilliput diatomaceous filter candle which retained *M. melitensis* and *S. cholerae*. Two volunteers were injected intravenously with sufficient of the filtrate to contain fifteen minims (1 c.c.) of the blood and both developed typical attacks of dengue, one in three days and eleven hours, the other in approximately three days and twelve hours. We regarded these two cases of dengue fever produced by the intravenous injection of filtered blood from dengue patients as the most typical cases of the severe type of the disease that we saw during the epidemic. The blood injected was obtained in one instance from a patient suffering from dengue produced by the intravenous injection of unfiltered dengue blood, thus proving that the experimental disease could be transmitted in this manner, as well as the naturally acquired disease. The results of these experiments justified us in concluding that the virus of dengue fever is filtrable and that the intravenous injection of filtered blood from dengue cases produces the disease.

We then endeavored to produce the disease by allowing mosquitoes that had bitten dengue patients to bite healthy individuals. At that time we were ignorant of Bancroft's successful results with *Stegomyia fasciata* and in our work we used *Culex fatigans*, as this species of mosquito was very prevalent during the epidemic that we studied, and had been stated by Graham to be the transmitting agent in the disease. Unfortunately for the success of our experiments, we were forced to use volunteers who had passed through the epidemic at Fort McKinley without contracting the disease, and of the nine men with whom we experimented, three were afterward proved to be absolutely immune, while three others were relatively immune, as shown by the mild character of the attacks of dengue produced by relatively large doses of dengue blood injected intravenously. In only one instance were we able to produce the disease through the bites of infected mosquitoes; but the results in this case were so clean-cut and definite that we considered that the experiment confirmed Graham's assertion that dengue is transmitted by *Culex fatigans*. The volunteer had not been exposed to dengue, as no cases of this disease had occurred at the hospital where he had been on duty. He was exposed to the bites of mosquitoes that had bitten a dengue patient in the third day of the disease, two days previously, and in four days he developed a typical attack of the disease.

We were able to prove that dengue is not contagious, as we exposed healthy men by allowing them to live in mosquito-proof tents with patients suffering from dengue, throughout the entire course of the disease. These men slept in the patients' beds, wore their underclothes and pajamas, and ate and drank from the same table utensils. In this way eight men were experimented with, and in no instance did dengue fever develop. As these men had not been exposed to dengue prior to the experiments, there is no reason for believing that they were all immune, and we believed that the results obtained proved beyond question that dengue is not contagious.

Summing up the results of the researches of Ashburn and myself, it is evident that we proved that the cause of dengue fever is present in the peripheral blood; that the injection of such blood intravenously produces the disease; that the intravenous injection of such blood filtered through a filter capable of retaining organisms as small as *M. melitensis* produces the disease and that, therefore, the virus of dengue belongs

to the group of filtrable viruses; that the intravenous injection of filtered blood from experimental dengue fever reproduces the disease, and that dengue is not contagious. In addition we obtained what we regarded as conclusive evidence that the disease is transmitted by *Culex fatigans,* and showed that, so far as the methods we employed were concerned, it was impossible to demonstrate any visible organism in the blood, either microscopically or culturally, thus disproving Graham's assertion that a visible causative organism existed in the blood of dengue patients. Our experiments also proved that certain individuals are absolutely immune to dengue fever; that the average period of incubation, when the disease is produced by the intravenous injection of infective blood, is from three and a half to four days, being actually three days and fourteen hours, and that a leukopenia, accompanied by an increase in the small mononuclear leukocytes, is a characteristic blood condition. As a result of our experiments we stated that "dengue is not a contagious disease, but is infectious in the same manner as is yellow fever and the malarial fevers."

CLELAND, BRADLEY AND MCDONALD'S RESEARCHES

Since the work of Ashburn and myself, numerous investigators have demonstrated that no visible parasite can be found in the blood of dengue patients, using the ordinary microscopic and cultural methods; but the only experimental work that has been accomplished since the publication of our work is that of Cleland, Bradley and McDonald, and their results will now be reviewed.

In their first series of experiments,[5] reported in 1916, these investigators used *Stegomyia fasciata* mosquitoes caught in rooms occupied by dengue patients in an infected district in Australia, some of the insects being allowed to bite a dengue patient on the first and second days of his illness. These mosquitoes were brought to Sydney, where dengue fever does not occur, and were allowed to bite seven healthy volunteers, four of whom contracted the disease, the incubation period varying from five to nine days. In two instances, healthy volunteers bitten by *Culex fatigans* mosquitoes that had bitten dengue patients failed to develop the disease.

The subcutaneous injection of 1 c.c. of blood from three of the four experimental cases of dengue produced by the bites of infected mosquitoes in turn produced the disease in three of four healthy volunteers, the incubation period again varying between five and nine days, approximately.

In this series of experiments it will be seen that Cleland, Bradley and McDonald confirmed the observations of Ashburn and myself that the injection of blood from dengue patients into healthy adults produced the disease, and that they also confirmed the observations of Bancroft regarding the possibility of the transmission of dengue fever by *Stegomyia fasciata.*

In a second series of experiments,[6] reported in 1917, these observers obtained successful results in thirteen of twenty-eight volunteers by the subcutaneous injection of the whole blood or constituents of the blood from dengue patients, while in seven instances the results were doubtful. Of five healthy volunteers injected subcutaneously with a mixture of serum and corpuscles from clotted infected blood, four gave positive results; in one case the citrated whole blood gave a positive result; in three of four cases the serum derived from clotted blood gave a positive result; in one of two cases the fluid portion of citrated blood gave a positive result, while in three cases in which a suspension of washed corpuscles from infective blood was injected, one gave a doubtful positive result.

As regards the filtrability of the dengue virus, these observers injected a filtrate of the clot and of the serum of blood taken from dengue patients on the second day of the disease in five volunteers, and secured a positive result in one case. The filter used is stated to have been a Pasteur-Chamberland, but it was not properly controlled.

In this series of experiments, the investigators mentioned proved that the dengue virus is present in the blood during the second and third days of the disease, and perhaps still present on the eighth day. They also proved that the blood retains its infectivity outside the body for a period of four days, and, in some instances, for as long as seven days.

In a third series of experiments,[7] reported in 1919, Cleland, Bradley and McDonald injected twenty-one healthy volunteers with dengue blood, in various forms, and secured eleven positive results and one doubtful result. They confirmed their previous findings that the subcutaneous injection of unfiltered blood from dengue patients produces the disease in healthy adults, and that carefully washed blood corpuscles, citrated blood plasma, and the blood serum free from blood corpuscles, are all capable of producing the disease. They determined that the dengue virus is resistant to external conditions for as long as ninety-nine hours after it is removed from the body; that it was present in the blood of patients for eighteen, fifty-seven, sixty-seven and ninety hours after the onset of the disease, and that in one case the blood was apparently noninfective 130 hours after the beginning of the disease.

The further experiments of these investigators with filtered dengue blood are of interest, as they confirm the work of Ashburn and myself, who first proved that the dengue virus is filtrable. They injected seven volunteers with about 2 c.c. of dengue blood subcutaneously, the blood having been filtered through a Pasteur-Chamberland Candle F, which retained ordinary bacteria, as staphylococci and colon bacilli. Of the seven volunteers so injected, three developed typical attacks of dengue fever. In one case the incubation period was seven days; in one, eight days, and in one the period of incubation was doubtful. In one case the blood injected was obtained during the first day of the disease; in one case, during the second day, and in one case, during the third day of the disease; while the virus was outside the body before injection in one case for twenty-two hours, in one case for forty-eight hours, and in one case for forty-nine hours.

In this series they record one more negative mosquito experiment, using *Culex fatigans,* and a few experiments in which they made an effort to transmit dengue to guinea-pigs and rabbits, which resulted negatively.

Briefly summarizing the results of their work, it may be stated that Cleland, Bradley and McDonald confirmed the work of Ashburn and myself as regards the infectivity of unfiltered blood from dengue patients, and the fact that the dengue virus belongs to the group of filtrable viruses, and the observations of Bancroft

5. Cleland, J. B.; Bradley, B., and McDonald, W.: M. J. Australia **4**: 204, 1916.

6. Cleland, J. B.; Bradley, B., and McDonald, W.: J. Hyg. **16**: 367, 1917-1918.

7. Cleland, J. B.; Bradley, B., and McDonald, W.: J. Hyg. **18**: 217, 1919.

that the disease may be transmitted by the yellow fever mosquito, *Stegomyia fasciata*. As regards the transmission of the disease by *Culex fatigans*, their three negative experiments are too few to be valuable as evidence against the transmission of the disease by this insect in view of the positive results of other investigators. In addition, these observers extended our knowledge of the virus by demonstrating that it is present both in the blood serum and in washed blood corpuscles, and that it is resistant to external conditions for several days.

In their last series of experiments, Cleland, Bradley and McDonald obtained a shorter period of incubation in some of their experimental cases than in their previous experiments, but they state that the period of incubation was extremely variable, but not shorter than four and one-half days, nor longer than fifteen days, the average being between six and eight days.

CRITICAL COMMENT

At the present time it may be stated that it is proved that dengue fever is due to a filtrable virus, present in the peripheral blood of those suffering from the disease during the first four days of the fever, and probably for a longer period, and that it is not contagious but is transmitted by mosquitos. The exact nature of the parasite, the period of incubation in experimental cases, the exact species of mosquitoes capable of transmitting the disease and how soon after biting infected individuals they become infective are all subjects deserving of critical consideration and further experimentation.

Nature of the Parasite.—Beyond the fact that the parasite is present in the peripheral blood of dengue patients, is filtrable, and resists external conditions for several days, we have no knowledge of its exact nature. It is evident that the plasmodium-like organism described by Graham does not exist in the blood of dengue patients, as the methods that have been employed in efforts to demostrate it by numerous investigators are amply sufficient to have resulted in its discovery; but, in view of the results of Noguchi in his work on *Leptospira icteroides*, it is evident that the methods so far employed in the search for the parasite of dengue fever have not been of such a nature as to lead one to expect its demonstration, if the disease is due to a similar spirochete. *Leptospira icteroides* occurs in such small numbers in the blood of those suffering from yellow fever that Noguchi was able to find it under the dark field in only three of twenty-seven cases of the disease and then only after very prolonged search, while in stained preparations of blood it was very seldom demonstrated. If it be remembered that at the time of the work of Ashburn and myself the dark field method of examination was in its infancy, it can be readily understood why an organism of this character might easily have been overlooked, and it should also be remembered that Noguchi's first successful demonstration of *Leptospira icteroides* was made, under the dark field, in the blood of guinea-pigs that had been inoculated with blood from yellow fever patients, the guinea-pig serving as a culture tube for the parasite. This manner of examining the blood in cases of dengue fever has not been utilized, but it is not improbable that it might result in success.

The filtrability of the parasite is in favor of the disease being due to a spirochete, as Noguchi has proved that *Leptospira icteroides* is filtrable, and in a personal communication, Major Nichols has informed me that this organism can pass through filters that retain all ordinary bacteria in the spirochetal stage; so that, while it is not proved that a granular stage of the parasite does not occur, such a stage is not necessary in explaining the filtrability of the virus. In view of these results, if the cause of dengue is a spirochete, the filtrability of the virus is easily explained.

The similarity of dengue and yellow fever, both clinically and etiologically, speaks strongly in favor of the spirochetal nature of dengue. Clinically, both diseases have a sudden onset, run a comparatively rapid course, and terminate by crisis rather than by lysis. In a previous communication I [8] have called attention to the similarity of the two diseases, and it is a point that is worthy of serious consideration.

In both diseases the cause is present in the blood, but only during certain periods; in both, the injection of unfiltered blood from patients suffering from the disease results positively, the incubation period in yellow fever being usually three and a half days, while, in our experiments, the incubation period in dengue averaged three days, fourteen hours; in both, the injection of filtered blood produces the disease, thus proving that both are due to a filtrable virus; in both, the transmitting agent is a mosquito; and both have been proved to be noncontagious.

The Period of Incubation.—The period of incubation, after the injection of dengue blood, varies considerably in different cases. Thus, Ashburn and myself found that it varies between two and one half and seven days, while Cleland, Bradley and McDonald obtained variations all the way from four and one-half to nine days, and in one instance the period of incubation appeared to be fifteen days. The latter authors call attention to their uniformly longer periods of incubation compared with those obtained by Ashburn and myself, but this difference is easily explained, I believe, by the fact that our injections were made intravenously, while theirs were made subcutaneously. It is reasonable to believe that the cause of the disease, which obviously lives in the blood stream, will produce the disease more rapidly if injected directly into the blood vessels, and thus the period of incubation will be shorter, than when it is injected subcutaneously.

However, there is nothing mysterious in the variations in the period of incubation of a disease following such experiments, for the dose of the virus administered probably explains such variations when the method of administration is the same.

Transmission by Mosquitoes.—I believe that the work of Bancroft, and of Cleland, Bradley and McDonald, proves beyond question that in Australia dengue fever is transmitted by the yellow fever mosquito, *Stegomyia fasciata;* but I am also of the opinion that it has not yet been proved that *Culex fatigans* cannot transmit the infection. The three experiments with this species of mosquito performed by Cleland, Bradley and McDonald, while resulting negatively, are altogether too few in number to have much weight in answering the question, in view of the apparently positive results of Graham, and of Ashburn and myself. Unfortunately, according to Cleland, Bradley and McDonald, Graham has stated that he could not be sure that there were no *Stegomyia fasciata* mosquitoes among those he used, so that some doubt must attach to his results. As regards the single successful case

8. Craig, C. F.: New York M. J. **93**: 360, 1911.

of the transmission of the disease by *Culex fatigans* secured by Ashburn and myself, it is our opinion that this infection was undoubtedly produced by the bites of infected *Culex fatigans* mosquitoes, as in no other way could the infection have been contracted under the conditions surrounding the experiment; but it still remains to be decided whether this successful result was in the nature of an accident, the insects having bitten the dengue patients within two days before biting the experimental patient. It is possible that the successful result was due to the regurgitation of infective blood remaining in the insect's stomach into the wound made while biting, but it is more reasonable to believe that this species regularly transmits the disease, although there may be no sexual cycle of development of the parasite within the mosquito.

The question of how soon a mosquito becomes infective after biting a dengue patient, or how long the insect remains infective, has not been answered by any work recorded to date, nor have the exact limits of the infectiveness of the dengue patient to the mosquito been determined.

CONCLUSION

I believe that dengue fever is caused by a parasite very closely related to that causing yellow fever. As it is practically proved that the latter disease is caused by a spirochete, *Leptospira icteroides*, the search for a similar organism in the blood of dengue patients, using the cultural and animal experimentation methods followed by Noguchi in his demonstration of *Leptospira icteroides*, is believed to offer the most promising chance of demonstrating the causative parasite of dengue. As long ago as 1906, Ashburn and I believed that this disease might be caused by a spirochete, and in our work we used every method at that time available in our endeavors to find such an organism in the blood of dengue patients, but without success. The anaerobic culture methods devised by Noguchi, so successful in cultivating spirochetes, together with improved methods relating to animal experimentation, are powerful aids to the investigation of disease; and it is believed that if properly applied in the study of the etiology of dengue fever it will be only a question of time before the causative parasite is discovered, and another victory will be added to those already secured through the adoption of scientific laboratory methods in the study of the etiology of disease.

Traumatic Conjunctivitis Caused by Ultraviolet Rays.—The effect of ultraviolet rays on the eye was recently noted by C. R. Kindall, a surgeon for the Bureau of Mines. Of thirty men who viewed the demonstration of a new portable electric arc welding outfit, seventeen reported a few hours later for treatment, suffering from traumatic conjunctivitis. In two cases the pain was severe and the symptoms were similar to those of iritis. Morphin had to be administered. Only two of the thirty were not affected in some way. These two wore thick-lensed orange colored glasses. Several wore orange glasses with thin lenses, but the latter were not heavy enough to afford protection. The inflammation was due to the ultraviolet rays. Kindall urges that at every plant where electric arc welding outfits are used, there should be an adequate supply of glasses with lenses made of alternate layers of red and blue glass or orange glass of sufficient thickness to protect the eyes from the effects of ultraviolet rays. There should also be on hand a supply of boric acid, sterilized water, ordinary table salt, and silver protein preparation for immediate use. All cases of traumatic conjunctivitis caused by exposure to bright light or ultraviolet rays should be treated under the direction of a physician.

ADENOMA OF MUCOUS GLANDS OF MOUTH, AND MACROCHEILIA*

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Enlargements of the lips produced by disease of the mucous glands are uncommon, and are either inflammatory or neoplastic in character. Volkmann,[1] in 1870, under the name of myxadenitis labialis, or cheilitis glandularis apostematosa, described five cases of a chronic inflammation of the lip mucous glands; all the patients were adults, three had syphilis, and the process was long drawn out with frequent exacerbations. These mucous glands were palpable, the gland ducts frequently dilated, and small cysts or abscesses common. Stomatitis or gingivitis was present to a noteworthy degree in every case, and Volkmann believed that the gland involvement was due to the mouth infection and that syphilis, when present, was a factor of only secondary importance.

Eichhorst,[2] in 1893, under the title of "Elephantiasis Syphilitica der Lippen," described an enlargement of both lips in a man involving the mucous glands with the other lip tissue. Thimm[3] had a case of machrocheila caused by a syphilitic involvement of the lip mucous glands in an adult which he believed to be purely syphilitic. It is unique not only because of this, but also because it concerns a woman and that it is the first time the term macrocheilia was used to describe syphilis of the lips. The lips were uniformly swollen, the mucous membrane intact, and even considerable pressure was not painful. The enlarged mucous glands were readily palpated, and the dilated gland ducts could be probed for short distances. There was no inflammation of the mouth mucous membrane except for a slight gingivitis. Complete disappearance of these conditions followed treatment for syphilis. Rousel's[4] case of cheilitis glandularis, the name and identity of which he obtained from Stelwagon's Diseases of the Skin,[5] is like Thimm's. It occurred in a white man, aged 36, with bad teeth, syphilis and enlarged lip mucous glands, with occasional small ulcers. This likewise cleaned up under antisyphilitic management and the use of the electrolytic needle. Aside from the part played by syphilis and mouth infections in the production of these inflammations of the lip mucous glands, it was assumed by the earlier authors that the so-called scrofulous constitution was an important factor. Nowhere is there any mention of tuberculosis.

A more frequent enlargement is that described as "double lip" by the European writers, especially the French and English, sometimes called hypertrophy of the mucous or labial glands. The enlarged soft lip is covered by smooth mucous membrane, with palpable nodules beneath it. The fold formed by the projecting red portion is more conspicuous when the person is laughing or talking. In the upper lip the fold is divided by the frenum, and the lower is always single.

* From the Department of Oral Surgery, Northwestern University Dental School.

* Read before the Section on Stomatology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Volkmann: Virchows Arch. f. path. Anat. **50**: 142, 1870.
2. Eichhorst: Virchows Arch. f. path. Anat. **131**: 568, 1893.
3. Thimm: Deutsche med. Wchnschr. **21**: 389, 1895.
4. Rousel: New Orleans M. & S. J. **58**: 739, 1906.
5. In the seventh edition of Stelwagon's text (Philadelphia, 1914) there is a summary of seven cases reported by Purdon, Sutton, Howard Fox, Schamberg and Wise, like those described by Volkmann.

Edington [6] described two cases and knew of a third, all in young men, first noticed in early childhood. The excised tissue of one such lip was examined microscopically and consisted of mucous glands embedded in a scanty connective tissue without any inflammatory infiltration. Operation yielded very satisfactory results in two cases, in one only after a second excision of glands apparently missed the first time.

Boissen [7] called this condition polyadenoma, and mentioned the occasional occurrence of an inflammatory process, which sometimes went to the length of ulceration.

Miles [8] and Sick [9] each described similar cases involving the upper lip in men.

Wright's [10] case belongs to this group. An enlargement of both lips in a young man, aged 18, had been in existence since birth, and the small tumor masses were distinctly palpable beneath the intact mucous lining. Removal was successfully accomplished after two operations. No microscopic examination was made, and infection was apparently not present.

Fraenkel,[11] in 1892, seems to have been the first to attach the name macrocheilia to lip enlargements resulting from adenoma of the mucous glands, in reporting a case of a man, aged 18, with a marked protrusion of the lower jaw, and a slowly growing tumor of the lower lip first noted by his parents during his fourth year. Some points in his description are important. The lip hung down so as to expose the incisors entirely. The mucous membrane was smooth, intact, without folds, furrows or elevations, and was normally soft without any evidence of inflammation such as pain on pressure and redness. Mucus appeared in small globules on the lining and ran in long strings down the exposed surface. It was diagnosed as lymphangioma, operation advised and accepted, and then in Fraenkel's words, "there occurred an astonishing discovery: At section of the mucous membrane there sprang forth between the incised borders a conglomerate tumor mass stretching from corner to corner, and consisting of a multitude of small lipoma-like masses with delicate lobulations up to the size of a cherry pit." The histology was in complete accord with that of unaltered mucous gland tissue. "The single acini are not hypertrophied, mostly devoid of secretion, none are cystic, the interacinous tissue is not broadened, and the walls of the blood vessels are thin."

Fraenkel was unable to find another case in the literature with the possible exception of Wright's, which he read in abstract. He believed that the mucous gland tumor was associated with and possibly due to the jaw deformity.

Eisendrath,[12] in 1904, described a very similar case in a 16 year old boy involving both lips, most marked in the upper; this lip was divided into two parts, soft, not painful, the lining smooth and without vesicles or dilated vessels. The true nature of the tumor was recognized only after microscopic examination, and consisted of normal lip mucous gland substance without cysts, infiltration, or connective tissue proliferation. This lip malformation was first noticed at 10 years, and was associated with a double ptosis of the eyelids.

6. Edington: Glasgow M. J. **64**: 81-86, 1906.
7. Boissen in Dechambre: Dictionnaire encyclopédique, 1869, article on "Levres."
8. Miles: Lancet **2**: 717, 1892.
9. Sick: München. med. Wchnschr. **46**: 680, 1899.
10. Wright: New York M. J. **56**: 152, 1884.
11. Fraenkel: Arch. f. Chir. **44**: 95-101, 1892.
12. Eisendrath: Ann. Surg. **40**: 320, 1904.

Lindenberger,[13] Donati [14] and Masera [15] have reported cases of upper lip tumors under the term of macrocheilia, the result of hyperplasia or hypertrophy of the mucous glands.

D. B., a dentist, aged 26, came to the oral surgery clinic of the Northwestern University Dental School with a smooth, soft enlargement of the upper lip. The mucous membrane was intact, the swelling divided into two parts by the frenum, not tender, and without redness of the adjacent skin. There was no history of previous illness, and the condition had existed as long as the patient could remember. He believed it was gradually increasing in size because of his constantly biting the swollen lip. No history of syphilis was obtained, and a Wassermann test was not made. It was diagnosed as lymphangioma and the tumor mass removed under local anesthesia by Dr. Thomas L. Gilmer.

Paraffin sections of the excised tissues stained with hematoxylin and eosin were bordered by an unchanged lining, beneath which were embedded numerous mucous glands. Some of these were without change, others were the site of inflammatory alterations. One had a markedly dilated duct with thickened wall surrounded by a marked small round cell infiltration. The attached gland contained acini varying from perfectly formed tubules to those with dilated walls, and the absence of functioning gland cells. The interacinous connective tissue was increased in amount and contained many inflammatory cells, many round, occasional plasma and eosinophil cells. There were no abscesses and no polymorphonuclear leukocytes.

According to the requirements of Fraenkel, this is not a genuine mucous gland macrocheilia, nor does it conform to the purely inflammatory type of lip enlargement. It readily falls into the group of so-called "double lip," with some secondary infection probably resulting from the habit of biting the lip.

Of these nineteen cases, only one was in a female, thirteen involved the upper lip, nine the lower (this included three of both), five of the lower lip class were in syphilitic individuals, and two were of supposed inflammatory origin. Two were associated with trauma, one patient had misplaced teeth, two had other deformities, and six had syphilis. The neoplastic form was found in the upper lip twelve times and the lower three, and began in childhood, if not earlier, almost without exception. There is no statement anywhere connecting these tumors with malignancy. Excision, if extended to include all of the involved glands of this form, has been uniformly successful.

The term macrocheilia, therefore, has been used to name not only the better known lymphangioma but also these unrelated mucous gland enlargements. It is difficult, if not impossible, to classify these conditions on the basis of any such terminology, and it would therefore seem wise to abandon such descriptive terms as macrocheilia and double lip for the more exact names associated with the actual pathologic condition that does exist.

31 West Lake Street.

13. Lindenberger, Irvin: A Case of Macrocheilia, J. A. M. A. **44**: 959 (March 25) 1905.
14. Donati: Gaz. med. Ital. **56**: 71-74, 1905.
15. Masera: Morgagni **53**: 151-160, 1911.

Mosquitoes in California.—A total of seventy-one mosquito collections were made in southern California (eight counties), consisting of 814 mosquitoes, of which 49.6 per cent. were anophelines (30.5 per cent. *A. quadrimaculatus;* 0.2 per cent. *A. punctipennis* and 69.3 per cent. *A. pseudopunctipennis*). The average annual death rate from malaria for the ten-year period, 1909-1918, for that portion of the state was 0.9 per hundred thousand population.—*Pub. Health Rep.* **35**: 276 (Feb. 6) 1920.

TREATMENT OF COMMINUTED FRACTURES OF THE MANDIBLE*

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In dealing with this phase of the subject it must be conceded that the comminuted fracture is but one form of fracture, and that, according to its location or extent, it may be considered as the principal object of study, or as a complication of a fracture of less severity.

The general plan of treatment of mandibular fractures must be kept in mind, namely, the reduction of all viable fragments, the retention of all teeth, if they are not detrimental to repair, in their normal occlusion, and the retention of all bone fragments and osteogenic tissues in as nearly normal positions as possible.

As each case presents a different picture, many methods and devices must be brought into play in order to meet the indications mentioned.

Efficient drainage, as indicated either before or after reduction and retention, is all important, as these cases are almost invariably infected. One should anticipate the needs of the case rather than wait until pus has formed and the vitality of many fragments has been lost.

If the patient has been seen early and presents an open wound, all dead soft tissues and detached bone fragments and foreign bodies should be removed. Small attached fragments may be temporarily wired to larger ones or to a splint used to immobilize them. Circumferential wiring may be employed to draw into place and retain larger fragments, the wire being passed around the bone and twisted over a splint.

When the bone is badly minced, the parts may be molded and held more or less satisfactorily in place by modeling composition beneath the chin, at least until, by plastic exudate, the parts become a little more stable, when they may be better retained by other appliances. When external appliances are used they should be broad enough beneath the chin to prevent compression (by bandages) of the fragments toward the median line.

It is desirable, when teeth and much bone have been lost, to hold the remaining periosteum in its normal relationship as, in many cases, by regeneration of bone in its proper place, bone grafting may be facilitated and in some cases their necessity avoided. Fragments of teeth, fillings and roots should be sought for in the soft tissues, as many times they have been found quite distant from the site of fracture. Tooth roots exposed in the line of fracture should be removed, although at times they may be utilized temporarily for the retention of a fragment; but their retention may be at the expense of union, as they are frequently the sole cause of nonunion.

Retarded union is often due to the presence of a devitalized tooth whose root, even though it may be some distance from the line of fracture, exhibits a restraining influence due, no doubt, to bacteria or toxins retained within the canal; and in such a case the roentgenogram may be negative. At times one encounters a persistent discharge of pus due to a piece of dead bone: Six weeks is ample time for the dead bone to be separated from the living, and one should not longer delay its removal.

A cavity between the plates of bone should not be allowed to remain, as it fills with fibrous tissue, which either fails to calcify or by its slow process retards healing to a marked degre. Such cavities should be obliterated by cutting one or the other plate away, allowing the periosteum to fall into the concavity, which readily heals.

Sometimes one sees a bony growth extending from the body of the bone toward the floor of the mouth. Such growths may become quite extensive, but they seldom cause distressing symptoms. The theories advanced by Girard and Maurel are that they develop from osteoperiosteal tissues carried into the depths at the time of injury, or that they spring from bony spicules pulled away from the symphysis by the geniohyoglossus in its retraction at the time of injury or later. Infection also plays its rôle in all probability in these hyperostoses.

At times we may be justified in retaining a large sequestrum involving the diameter of the bone, provided the wound is draining freely and it is frequently irrigated, in order that the periosteum may mold the new bone supplying the lost part, when, if the sequestrum were removed, the periosteum would collapse and the space become shortened. The prototype of this is seen in involucrum formation and restoration following phosphorus necrosis.

The avoidance of extensive scar formation about the jaws and face is very important, and a great deal can be accomplished in this direction by drawing the skin over the granulating surface by means of laces, or even Thiersch grafts, until a plastic operation may be attempted.

One should anticipate difficulties of respiration, when by loss of tissue or comminution, the anterior attachments of the tongue and hyoid muscles are broken; a ligature through the tongue looped around its tip may avoid a tracheotomy, the facilities for which should always be at hand.

If an infection assumes the character of a Ludwig's angina, it should be incised, a T-shaped incision being made use of preferably.

It is extremely important that these patients be made ambulatory as soon as possible. It seems to stimulate their vital forces, create an appetite, and contribute to the relief of their depressed mental state.

The employment of eusol, surgical solution of chlorinated soda (Carrel-Dakin solution) and dichloramin-T has not proved so useful in wounds communicating with the oral cavity as in wounds of other parts of the body.

Potassium permanganate, 1:1,000 or even stronger, is one of the best medicaments to control the fetid odor, which is very marked in most of these cases. The use of the douche-can irrigator three or four times daily is essential, and the patient should have a supply of his own which he should use every hour as a mouth-wash.

When, after the body of the bone has been restored, there is still a falling-in of the soft parts due to loss of the teeth and alveolar process, the contour of the face may be restored by a suitable dental prosthesis.

At times there are pernicious attachments of the mucous membrane of the cheeks and lips to the bone which preclude the possibility of dental appliances. In such cases the sulcus may be restored by incision and a Thiersch graft retained on modeling composition held in place by bands and wires fastened to the remaining teeth.

* Read before the Section on Stomatology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

The problem of feeding is an important one and should be forced as much as possible (some form of food every four hours), malted milk and other infant foods, ice cream, fruit juices and meats which have been passed through a meat grinder being used. These should be alternated with the other liquid foods in order that the patient does not tire of them.

When, on account of the injury, the patient cannot swallow except with difficulty, a nasal tube may be employed.

In general, each case should be considered from three standpoints: (1) the restoration of the bony jaw; (2) the restoration of mastication; (3) the cosmetic result.

EPITHELIAL INLAYS VERSUS SKIN OR MUCOUS MEMBRANE FLAPS

FOR REPLACING LOST MUCOUS MEMBRANE IN THE MOUTH *

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The title of my paper is misleading. I have no desire to start a controversy over the methods employed in restoring lost mucous membrane in the mouth, but I wish to point out some of the reasons why epithelial inlays are indicated in the treatment of injuries and disease.

As a preface to my remarks I would say that almost every case requires modification of any method adopted. In the early days of the war, the epithelial inlay was not used. As a matter of fact, the method was not described until the year 1917; hence the skin flaps and mucous membrane flaps were used in every case for the restoration of lost mucous membrane. Many surgeons, having success with this method, continued to use it, but it is interesting to note that the surgeons attached to the English centers were quick to adopt the epithelial inlay as part of their armamentarium for replacing mucous membrane.

The surgical textbooks describe in detail the indications and technic for the restoration of the mucous membrane in the mouth by the use of skin flaps and mucous membrane flaps. Some of the contraindications to their use are not sufficiently emphasized. There is no question that in restoring mucous membrane when the area involved is so situated that it has sufficient adjacent mucous membrane for the making of the mucous membrane flap, this method is the one of choice. In cases in which there is not a sufficient amount of mucous membrane, one may increase it by freeing the mucous membrane at the site of the scar tissue.

It will be observed that there is a slight proliferation of the mucous membrane for weeks or months following, because of the tendency of the membrane to roll out. This process may be aided by the use of Bier's hyperemia cups.

In mucous membrane flaps, it is essential that the mouth be placed at rest in the open bite splint, the latter having a movable bar to which modeling compound can be attached. After freeing the area to which the flap is to be applied, a model is taken in the compound and attached to the rod in order to hold the flap under pressure and in perfect apposition with all parts of the cavity. It is the same surgical principle as that employed in the case of the Wolf graft. The flap must be kept in apposition to the area that is to be covered. The flap or graft will always take if held under pressure.

It is difficult at times to estimate just how much contracture may occur in the site from which the flap is taken. If the surgeon feels that there is a possibility that contracture will occur in the area on which the flap is to be taken, I would say that the epithelial inlay should be used in preference.

Skin flaps unquestionably have considerable value in restoring great defects. The objection to them, however, is that they are all bulky and do not make the perfect mucous membrane. The skin flaps as a rule must be selected from a hair-bearing area. The tendency for the hair to continue growing in the mouth is a source of great annoyance to the patient. The use of the roentgen ray to destroy the hair follicles is of some value, but is not a sure method. If it is necessary to use a flap from a hair-bearing area, the hair should be destroyed before the flap is made.

The epithelial inlay differs from the mucous membrane flap in that it has a tendency to contract. There is no way of preventing this except by keeping up the pressure for a long period of time. I have described the technic of the epithelial inlay heretofore.[1]

METHOD ADOPTED

In the Maxillofacial Service of U. S. Army Hospital No. 11, at Cape May, N. J., I used the method employed at the Queen's Hospital, Sidcup, England, but found it necessary to introduce several minor modifications:

1. We dissected out the scar tissue, enlarged the cavity much beyond what was desired, and then put the jaws in an open bite splint. The advantage of the open bite splint is that it keeps the mouth in one position—in the overcorrected one—preventing interference with the final result by subsequent contracture.

2. We retained the original compound in place for from fourteen to twenty-one days, and followed its removal by the insertion of a vulcanite model which was held in position for several weeks. The graft should never be sutured over the compound, as it defeats the object desired; that is, the compound is only supposed to hold the graft intact under pressure against the raw surface. The point to be remembered is that the compound should be held in place under pressure. If any of the graft extends over the normal mucous membrane, it does not do any harm.

While most of my experience with the use of the epithelial inlay has been in cases following war injuries, I am fully convinced that it holds a very important place in civil surgery.

CONCLUSIONS

The mucous membrane flap is indicated when it is possible to obtain such a flap without producing subsequent contracture over the point from which the flap is taken.

Epithelial inlay should be used in restoring mucous membrane when it is difficult to obtain a mucous membrane flap.

Skin flaps can be used to advantage in covering large defects.

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* Read before the Section on Stomatology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Dorrance, G. M.: Ann. Surgery **65**: 297, 1917.

PROGRESS IN NEPHRECTOMY

A STUDY BASED ON A SERIES OF TWO HUNDRED AND SEVEN CASES *

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This paper is based on a series of 207 nephrectomies, the majority of which have been performed since the reorganization of the surgical services at the Mount Sinai Hospital in 1914. In that year, the surgical services were placed on an entirely different footing, each selecting a definite group of ten cases, which were segregated for special study. In almost all of the kidney and ureter cases, the patients who applied for admission to the hospital wards were assigned to the service with which we are connected. This arrangement permitted intensive investigation, and has led to improvements, which have resulted in a marked reduction in the operative mortality.

In 1912, Gerster,[1] in a review of the nephrectomy work at Mount Sinai Hospital, collected 112 instances in which this operation has been performed in the preceding sixteen years, with a mortality of 21.22 per cent. Following 1912, very much the same material entered our wards, and in 207 nephrectomies, the mortality declined to 3.8 per cent. The patients in the first series were operated on by a number of surgeons. In the second series, virtually every case was operated on by either Dr. Beer or his associates Dr Leo Buerger or Dr. Hyman. The preoperative, operative and postoperative work was carefully standardized. This marked lowering of mortality is strong testimony in favor of group segregation. With a large amount of material along one line, the surgeon will naturally develop greater efficiency, provided he works with open mind and in no predetermined groove. It might be claimed that this decrease in mortality was due solely to the gradual and general development in urology. That such is not so, however, is shown by a parallel series of nephrectomies performed during the same years, by the occasional operator. Their figures, though much better than the mortality rate reported in 1912, are still more than three times as high as that of the special kidney service.

Why this marked reduction in mortality? A number of factors no doubt are responsible; the most important of all, the careful and exacting preoperative study to which every urologic case is subjected. Cystoscopy, pyelography and functional tests are routine procedures, and their constant daily application develops a certain familiarity that the occasional observer may not hope to attain. The ordinary type case is readily recognized, and is interpreted by most surgeons having some experience in urology. In the complicated cases, however, the judgment of large experience proves invaluable. Debatable points force themselves, some, for immediate decision, upon the surgeon. Is the diminished function of the opposite kidney due to a reflex inhibition, to a toxic nephritis, or disease of the organ itself? Is it advisable, in a specific instance, to perform a two stage nephrectomy, or to attempt removal of the kidney in one operation? Should the nephrectomy be subcapsular or should the kidney be extirpated in the usual method? Should a stone kidney be drained or removed? Will a decapsulation with nephrotomy suffice in pyelonephritis, or is a nephrectomy advisable? Questions like these frequently present themselves, and, naturally, the judgment of the surgeon with wide experience in urology can better solve them. Standardized postoperative treatment also is a factor. The continuous rectal drip with glucose, the avoidance of morphin in diminished renal function, transfusion to combat loss of blood and shock; all these measures play their part in effecting better operative results. Anesthesia is also of importance. Gas and ether are used in the average case; when the function of the opposite kidney is seriously impaired, gas and oxygen are preferred, as this combination is the least injurious of all anesthetics to the renal parenchyma.

The preoperative examinations previously referred to include urinalysis, roentgenography, "red test," cystoscopy and ureteral catheterization, combined with indigocarmine as a test of individual renal function, wax tipped bougies, pyelography, blood chemistry and blood pressure estimations. We all realize that advances in operative technic have helped to reduce mortality, but the factors mentioned above are far more important. Earlier recognition of serious renal disturbance by the general practitioner has also been of value. One rarely sees the large pyonephroses, or kidney tumors, which in years past were not recognized or often neglected. The significance of hematuria and pyuria are more readily appreciated by the physician and patient alike, and today, renal diseases requiring nephrectomy are seen earlier in their course than formerly.

TABLE 1.—INDICATIONS FOR NEPHRECTOMY ACCORDING TO PATHOLOGIC CONDITIONS

	Cases	Deaths	Percentage of Mortality
1. Tuberculosis	92	2 *	2.1
2. Extensive destruction of kidney due to suppuration with or without stone (a) Calculus pyonephrosis (b) Calculus pyelonephritis (c) Suppurative nephritis Pyelonephritis, multiple abscesses	49	1 †	2.03
3. Extensive destruction of kidney as in hydronephrosis, with or without secondary infection (a) Hydronephrosis (b) Pyenephrosis	36	3 ‡	8.3
4. Neoplasms	27	2 §	7.4
5. Rupture	1	0	0.
6. Persistant ureteral fistula	1	0	0.
7. Gunshot wound	1	0	0.
Total	207	8	3.86

* Hemorrhage, sepsis.
† Suprarenal shock.
‡ Pyelonephritis; hemorrhage; tetanus.
§ Uremia; general debility.

In a recent paper on "The Significance of Specialism in Surgery, with Reference Especially to Genito-Urinary Surgery," Thomas [2] points out the marked difference in mortality statistics between the occasional operator and the surgeon experienced in urology. He quotes two sets of figures in support of his argument:

> Investigation recently revealed the alarming statistics that in twenty-six hospitals, in this and neighboring states, the mortality for nephrectomy and prostatectomy at the hands of general surgeons was 25.9 and 22.5 per cent., respectively, as contrasted with 7.7 and 4.33 per cent. in seven times the number of operations, by eight of the world's most noted

* From the Surgical Service of Dr. Beer, Mount Sinai Hospital.
* Read before the Section on Urology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Gerster, A. G.: Ann. Surg., August, 1912.

2. Thomas, B. A.: Pennsylvania M. J. **20**: 101 (Nov.) 1916.

urologists. In other words, this means that in a large majority of such operations, from 75 to 80 per cent. of deaths were avoidable.

INDICATIONS FOR NEPHRECTOMY

The indications for nephrectomy in our series are classified according to the pathologic conditions given in Table 1.

It may be of interest and value, before proceding further, to take up the question of mortality statistics for nephrectomy in general, the figures for the special groups being considered under their respective headings. For a number of years uremia was considered the most frequent cause of death following nephrectomy. This complication now accounts for the minority of such deaths, undoubtedly demonstrating the value of modern urologic examinations. Schmieden,[3] in 1902, reported the statistics of nephrectomies reproduced in Table 2, showing the gradual decline in mortality from decade to decade.

TABLE 2.—GRADUAL DECLINE IN MORTALITY IN 1,118 NEPHRECTOMIES

	Mortality Per cent.
Lumbar Nephrectomy	
First decade	43.9
Second decade	26.9
Third decade	17.0
Abdominal Nephrectomy	
First decade	55.0
Second decade	48.0
Third decade	19.4

It may be remarked that, even at the present day, the mortality following removal of the kidney through an abdominal incision is higher than in lumbar nephrectomy.

CAUSES OF DEATH FOLLOWING NEPHRECTOMY

The principal causes, reported by Schmieden[3] in 1902, are given in Table 3.

TABLE 3.—PRINCIPAL CAUSES OF DEATH

	Total Deaths	Lumbar Nephrectomy (722 Cases)	Abdominal Nephrectomy (365 Cases)
1. Anuria, uremia, disease of other kidney	56	45	11
2. Collapse, shock	91	42	49
3. Peritonitis	30	3	27
4. Sepsis, pyemia	15	11	4
5. Hemorrhage	8	2	6

Recapitulation:
Deaths due to collapse..... 19.2%
Deaths due to uremia 9.2%
Deaths due to peritonitis 7.5%
Deaths due to hemorrhage ... 1.9%

Total nephrectomies, 1,087 Deaths, 301 Mortality, 27.23%

Küster[4] collected statistics of 1,521 nephrectomies by different surgeons (including Schmieden's statistics), with a mortality of 25.31 per cent. A study of more recent records give as the causes of death, in their order of frequency, pneumonia, shock, cardiac failure, hemorrhage, peritonitis and, last of all, renal insufficiency.

Of the 207 nephrectomies in our series, 189 were primary, 18 secondary; 199 were lumbar extirpations, 8 transperitoneal. Subcapsular nephrectomy was performed twelve times. Two of the eight deaths occurred after secondary nephrectomy. The deaths were in the conditions named in Table 4.

Analyzing the causes of death, it becomes apparent that some of them may be classed as avoidable, such as the two from hemorrhage. The patients who succumbed from hemorrhage had had previous nephrotomies; as a result in both instances, the kidney was found densely adherent. The fatality from renal insufficiency was unavoidable, and occurred in a patient who had a large hypernephroma. At operation it was found that the right renal vein was occluded by a tumor thrombus which extended into the vena cava and then across to the opposite renal vein. The death from pyelonephritis occurred in a patient who had a horseshoe kidney with both halves hydronephrotic. The left half of the kidney was extirpated transperitoneally, and pyelonephritis developed, with death ten days later. The fatality from sepsis followed a long-standing suppurative process, due to perinephric and subphrenic abscesses which had been drained. Subsequently it was discovered that the origin of the infection was an old tuberculous pyonephrosis which had ruptured through the capsule. The death from shock occurred within twenty-four hours, following a nephrectomy for a calculous pyonephrosis. The adherent suprarenal was removed at the same time. Whether or not this contributed to the shock cannot be stated. The child who died from general debility had a large, mixed tumor of the kidney. At operation a very friable growth was found which was literally scooped away in handfuls. Death took place a few days later. The death from tetanus occurred ten days after operation. This patient received an injury of the kidney, resulting in the formation of a hematohydronephrosis. Tetanus, the source of which could not be determined, developed eight days after nephrectomy.

TABLE 4.—CONDITIONS IN WHICH DEATHS OCCURRED, AND CAUSES

Conditions:	
Tuberculosis	2
Neoplasms	2
Pyonephrosis	2
Hydronephrosis	1
Hematohydronephrosis (traumatic)	1
Causes of death:	
Hemorrhage	2
Renal insufficiency	1
Pyelonephritis	1
Sepsis	1
Shock (suprarenal)	1
General debility	1
Tetanus	1

Anesthesia.—The majority of patients were operated on under gas and ether; gas-oxygen was used in fifteen cases, and spinal anesthesia in two.

Secondary Nephrectomy.—There were nineteen cases in this group, the operation being performed in some instances as a matter of choice. In others, errors of diagnosis or of judgment were responsible for the two-step nephrectomy. This procedure was performed six times in large pyonephroses, when the general condition was such as to contraindicate a primary nephrectomy or when the function of the other kidney was so impaired, either through toxic nephritis, reflex inhibition, or actual disease of the organ itself, that a preliminary drainage was considered necessary. It is surprising to note how quickly the function of the opposite kidney recovers after this simple procedure. The first stage of the operation may readily be performed under local or gas-oxygen anesthesia, and requires only a few minutes' time. In a few cases, the primary nephrotomy had failed to relieve the original condition; because of an error in diagnosis, a nephrotomy instead of a nephrectomy had been performed. This happened twice in renal tuberculosis. In six cases, stone kidneys

3. Schmieden: Deutsch. Ztschr. f. Chir. **62**: 205, 1901-1902.
4. Küster: Chirurgie der Nieren, Stuttgart, 1902.

were nephrotomized and drained, and subsequently removed on account of recurrence of symptoms. One secondary nephrectomy was performed for a severe attack of pyelonephritis, following a nephrotomy for calculus. In another instance, a small growth, which was found in the kidney during the course of an operation for stone, was excised and reported adenocarcinoma, and the kidney subsequently removed.

As a rule, secondary nephrectomies are more difficult than primary operations, on account of the adhesions which generally form and bind the kidney to the peritoneum or pleura or other surrounding tissues. In this type case, subcapsular nephrectomy in most instances will be found much simpler and less dangerous than attempting to mobilize the kidney and proceding in the usual manner.

Transperitoneal Nephrectomy. — In precystoscopic days, transperitoneal nephrectomy was in particular favor, as the incision permitted palpatory exploration of both kidneys. After cystoscopy became a routine procedure, this method of approach gradually fell into disfavor, chiefly on account of the danger of peritonitis. Its main indication at present is in large tumors of the kidney (especially in children), when the space between the crest of the ileum and last rib is too narrow to permit removing the kidney through the loin without undue traumatism. There were nine transperitoneal operations in this series, four in adults and five in children.

TABLE 5.—FATALITIES IN RENAL TUBERCULOSIS

	Nephrectomies	Mortality Per Cent.
Frank	1,331	9.3
Legueu and Chevassu	1,539	5.9
Israel	1,023	12.9
Albarran	118	3.3
Wildbolz	139	2.8
Zuckerkandl	104	7.7
Braasch (Mayo Clinic)	532	1.3

Nephrectomy in Bilateral Renal Disease.—In seven cases the disease was bilateral, twice in tuberculosis, and five times in calculus with infection. None of these patients died. All were operated on under gas-oxygen anesthesia. In three cases a preliminary nephrotomy with drainage was first performed.

Group 1 (renal tuberculosis) forms the largest group in our series for which nephrectomy was performed: ninety-two cases with two deaths, a mortality of 2.1 per cent. There were five secondary nephrectomies; three of the operations were subcapsular. In two instances the disease was bilateral and the more diseased organ was removed. In general, the ureter was ablated as low down as possible, through the lumbar incision, phenolized and dropped back into the wound; complete excision of the ureter down to the bladder, through an anterior extraperitoneal incision, was practiced ten times (approximately in 10 per cent. of the cases). Its main indication is marked stricture formation at the lower end of the ureter. In a number of instances, the lumbar wound became tuberculous and broke down, weeks after the operation, whereas the anterior incision required for removing the ureter has never been so infected. The mortality following nephrectomy for tuberculosis has steadily diminished. In 1902, in the hands of well known surgeons, the fatalities numbered between 18 and 20 per cent. More recent statistics are given in Table 5.

The unquestionable value of cystoscopic and functional examinations in lowering the mortality is especially noticeable in the reduction of the death rate from uremia. Pousson,[5] in a series of 435 nephrectomies performed a number of years ago, reported 128 deaths, fifty-one of which were due to renal insufficiency. This at present is one of the most infrequent causes of death. Legueu and Chevassu[6] reported 1,539 nephrectomies, with forty-three deaths, twelve of which were due to uremia. The most common causes of death following nephrectomy for tuberculosis, in order of frequency, are myocarditis, pneumonia and embolism. Tuberculous meningitis, although mentioned by some authors, is a very infrequent cause of death.

Group 2 (calculous pyonephrosis, calculous pyelonephritis, multiple abscesses) forms the second largest number of cases in our series, forty-nine, with one death, a mortality of 2.03 per cent. It was in this series that the majority (eleven) of the secondary nephrectomies occurred. A number of patients (six) had had previous operations (either pyelotomy or nephrotomy) for stone. With recurrence of the stone, plus infection, it was found necessary in these cases to remove the kidney. Primary nephrectomy was performed whenever it was determined that the destruction of the kidney had progressed to such a stage that its conservation would be useless. In the majority of cases, the question of nephrectomy or nephrotomy can be decided only at operation, as functional tests frequently give a false idea as to the actual pathologic condition of the organ. A secondary nephrectomy is often indicated in the large pyonephroses of long standing, when the patient's health has been considerably undermined by chronic suppuration. The operative mortality of primary nephrectomy for the foregoing conditions, reported by Schmieden, was 30.1 per cent.; for secondary nephrectomy, 18 per cent. Israel,[7] in a recent publication reporting 102 cases of stone with or without infection requiring nephrectomy, had a mortality of 7.8 per cent.

Group 3 (hydronephrosis, pyonephrosis) comprised thirty-six cases with three deaths, a mortality of 8.3 per cent., higher than in any other group. The deaths, however, were from such widely different causes that no single factor can be held responsible for the higher mortality. One was due to hemorrhage, one to pyelonephritis, and the third to tetanus. There were five secondary nephrectomies; the death from hemorrhage followed a secondary nephrectomy. The mortality following nephrectomy for renal suppuration, as reported by various authors, is still high, between 17 and 21 per cent. for the primary operation, and approximately 17.5 per cent. for secondary nephrectomy.

Group 4 (neoplasms) included twenty-seven nephrectomies with two deaths, a mortality of 7.4 per cent. Twenty operations were for hypernephromas, two for adenocarcinoma, and five for mixed kidney tumors. One patient died from uremia, the other from debility. The lumbar route was employed eighteen times, the abdominal incision in nine cases, five of which were in children. Pleschner,[8] who collected statistics, reports a mortality of 13.5 per cent. for lumbar nephrectomy and 37.5 per cent. for the transperitoneal operation. The mortality for nephrectomy in children is much higher than in adults. Cardiac failure has been mentioned as one of the most frequent causes of death following nephrectomy for tumor (66.7 per

5. Pousson: Bull. méd., 1903-1908.
6. Legueu and Chevassu: VII Cong. internat. de la tuberculose, Rome, 1912.
7. Israel: Folia urolog., October, 1918.
8. Pleschner: Ztschr. f. urolog. Chir., 1913, p. 1.

cent., Bloch [9]). This is attributed to a toxic myocarditis due to breaking down and absorption of hypernephroma tissue, and is more frequently observed in cases in which the vena cava has been invaded by the growth. Most of these cases showed no evidences of cardiac disease before operation. The nephrectomies for rupture and gunshot wound require no special comment, the destruction being so complete as to preclude conservative surgery. The operation for persistent ureteral fistula was in a patient who had an impacted calculus in the lower end of the ureter, which was removed through an extraperitoneal incision. Considerable ureteritis and periureteritis was present. There was a profuse urinary discharge through the incision, which persisted for months and finally necessitated nephrectomy.

TECHNIC OF NEPHRECTOMY

It would be out of place in this paper to go into all the details of the operation under discussion, but it is well worth while emphasizing some of the most important technical points that have impressed us in the course of our work. As in all surgical procedures, the prime essential is adequate exposure, and for almost all cases except the very large neoplasms that appear abdominally we have employed the lumbar approach, whereas for the latter (large neoplasms) the transperitoneal route vertically through the rectus muscle has been used.

A. In the lumbar approach the incision is begun above the twelfth rib over the edge of the erector spinae muscle and extended obliquely downward and curving forward toward a point slightly above the anterior superior iliac spine. After the muscles of the abdominal wall have been cut the transversalis fascia has been incised, the perirenal fat is exposed and by traction against the twelfth rib and with countertraction against the crest of the ilium a wide separation of the soft parts and excellent approach to the kidney is obtained. At times the fibrous tissue posterior to the angle of the twelfth rib may have to be incised to give good exposure, and in cases in which the rib is acutely angulated on the spine and interferes with one's approach, it is surprising how readily this rib can be pushed up out of the way when those posterior attachments are divided. In placing one's incision in the foregoing position, the last dorsal and first lumbar nerves are exposed and the incision usually runs between these in its upper half. Rib resection or incision of the rib is rarely necessary. With adequate care the pleura is not injured. In one case in which rib resection had been employed, the pleura was opened and sutured.

After the perirenal fat, which is held out of the way, has been incised, the lower pole is regularly freed so that in case one encounters trouble, as bleeding from accessory vessels at the upper pole, one can quickly dislocate the organ without having to develop its lower half. With the organ delivered,[10] the vascular pedicle is carefully exposed with gentle sponging, and is transfixed with chromic gut. If the renal artery is readily felt that half the pedicle containing the artery is tied first at some distance from the kidney and the same ligature is thrown around the rest of the pedicle, which is then secured. This really makes a double ligature of the artery. Accessory strands containing vessels going to the upper pole of the kidney are doubly ligated before dislocating the organ. Such as go to the lower pole can usually be tied after developing the kidney and exposing its pedicle.[11] Before the vascular pedicle is cut through, reliable clamps are placed on it, and the stumps thus held (after cutting across the pedicle) are tied with plain gut. Throughout these procedures, care is taken not to open the pelvis or ureter. The latter can be readily held out of the way by throwing a loop ligature about it. At times when the delivery is difficult, ligation and section of the ureter, before attacking the vascular pedicle, may be helpful. In some cases it may be difficult to transfix a broad pedicle, and then it must be tied piecemeal. The avoidance of the use of clamps on the pedicle, and the regular use of ligatures under control of the eye, undoubtedly account for the fact that we have been successful in avoiding injuries to the colon and to the duodenum. In performing a subcapsular nephrectomy it is often necessary to incise the thick, inflammatory tissue as well as the reflected capsule to obtain soft pliable tissue at the vascular pedicle. Such incision should run parallel to the renal vessels and should extend well into the fat about these. Then the pedicle can be transfixed and the vessels tied firmly against their fibrous envelop. Using this technic, we have been able to discard the application of the rubber ligature to the pedicle with the regularly delayed healing that follows its use.

In the ordinary noncomplicated lumbar nephrectomy, accidents will rarely occur in experienced hands. In secondary nephrectomies and in those cases in which there is extensive perinephritis, one must be careful to avoid the peritoneum, which is usually readily seen. In case it cannot be separated from the kidney mass, either a piece of the perinephritic tissue or a piece of the peritoneum, preferably the former, must be sacrificed. Neither procedure adds to the danger of the operation provided, of course, that the operator appreciates the situation. Injury to the suprarenal system may prove a danger because of the ooze, which may be difficult to control. Suprarenals have been occasionally removed with the kidney, and as their vessels retract it may be difficult to control the bleeding except by packing. In other cases the suprarenal is torn, and then the bleeding is best controlled with interlocking sutures.

In some cases it may be necessary to remove the ureter and the kidney at the same sitting, and this is best done without opening the urinary channels in an aseptic manner. After the vascular pedicle has been tied, the kidney still attached to the unopened ureter is drawn out of the wound and the ureter is dissected bluntly with the fingers well down to the iliac vessels. A heavy ligature for the purpose of traction is applied to the lower part of the thus exposed ureter, and the kidney is replaced in the lumbar wound. Then the patient is rolled over on his back and an incision is made along the lower rectus muscle as far as exposure of the lower ureter. This is exposed retroperitoneally and readily identified by intermittent traction on the ligature applied to the ureter through the lumbar wound. The ureter is rapidly stripped out of its bed down to the bladder, doubly ligated and sectioned, and by traction from the lumbar wound it and the attached kidney are withdrawn. Both wounds are closed in layers with as little drainage as the indications suggest.

B. The transperitoneal approach, which was recommended in the seventies of the last century by T. Kocher for large tumors, gives a wonderful exposure and allows of early ligation of the pedicle. The peritoneum to the outer side of the colon is cut vertically, and the colon is displaced mesially. The kidney is rapidly dislocated and the vascular pedicle tied either after or before double ligation and section of the ureter. The bleeding is minimal if the proper cleavage plane is entered, and provided the kidney is rapidly dislocated. The large retroperitoneal space can be closed over by suture of the peritoneal opening, which is preferable, though in our experience not absolutely necessary.

SYNOPSIS OF DEATHS

CASE 1.—*Nephrectomy for hypernephroma of right kidney.*—The right renal vein was full of a tumor, which extended into the vena cava and thence, across the median line, into the opposite renal vein. Prior to operation, March 3, 1915, the left kidney appeared normal. After operation, hematuria continued and the patient died uremic, eight days after, as the result of involvement of the second kidney.

CASE 2.—*Secondary nephrectomy for massive tuberculoma and massive tuberculous perinephritis.*—In delivering a large mass, April 10, 1915, the upper enveloping perinephritic shell broke off, and in an attempt to liberate this, under the

9. Bloch: Folia urolog. **3**: 161, 1910.
10. The delivery of large nephroses is simplified by incision and evacuation of contents.
11. At times on the left side the spermatic or the ovarian veins may have to be tied separately.

impression that the process was neoplastic, a hole was made in the vena cava, over which the inflammatory mass was firmly adherent, and a fatal hemorrhage ensued.

CASE 3.—*Nephrectomy for large calculous pyonephrosis.*—Feb. 20, 1919, in the removal of a large pyonephrosis, the adherent suprarenal was removed. The operation took only a little more than fifteen minutes, but in the patient's debilitated condition shock was too severe, and death ensued within twenty-four hours. Whether the removal of the suprarenal contributed to the shock cannot be stated.

CASE 4.—*Nephrectomy (transperitoneal) for hydronephrosis of left half of horseshoe kidney.*—There was postoperative anuria due to obstructed hydronephrosis of the right half of the kidney. It was relieved by passage of a ureteral catheter. There was secondary pyelonephritis, and death occurred one week after operation.

CASE 5.—*Nephrectomy for tuberculous pyonephrosis.*—A patient, aged 35, had had fever and chills for ten weeks. The urine was negative for tubercle bacilli in smear, and guinea-pig inoculation. A left perinephric abscess was incised and drained. The kidney was not exposed. Fever continued. Then an incision was made for a subphrenic collection of pus, which was drained, without improvement. The condition of the patient gradually became worse, despite two transfusions; fever continued. The left kidney was exposed, and the upper two thirds was found necrotic, with miliary abscesses at the lower pole. Nephrectomy was performed; the pathologic report was tuberculous pyonephrosis. The patient's condition steadily declined, and death occurred two days after operation.

CASE 6.—*Nephrectomy for hydrohematonephrosis; tetanus.*—There was a history of trauma, with the formation of a tender mass in the left lumbar region. Cystoscopy demonstrated left renal hematuria. Operation revealed a kidney twice the normal size, with hemorrhages scattered over the surface, a cystic mass at the lower pole, the size of an orange, and dilatation of all calices, with thinning of the cortex. There was a small stone at the ureteropelvic junction. Eight days after operation, the patient developed symptoms of tetanus, the disease became progressive, and death ensued a few days later.

CASE 7.—*Second nephrectomy for pyonephrosis.*—A woman, aged 39, had had a previous nephrotomy and drainage at another hospital for calculous disease of the kidney. There was recurrence of symptoms. Cystoscopy revealed a double ureter and pelvis on both sides, with pyonephrosis of the right kidney. Secondary nephrectomy was performed. There was marked perinephric infiltration; considerable hemorrhage ensued in trying to mobilize the kidney, and the patient died a few hours later.

CASE 8.—*Transperitoneal nephrectomy for Wilms' tumor.*—A child, aged 2¾ years, was in poor condition before operation. An enormous tumor was found. It was very friable; the tumor tissue was literally scooped away in handfuls. Despite transfusions, the condition of the patient steadily became worse, and death took place three days later.

ABSTRACT OF DISCUSSION

DR. ARTHUR B. CECIL, Los Angeles: It is a matter of very nice judgment to decide about the two-step operation in these kidneys. Undoubtedly, we would use better judgment in some of these cases if we did a preliminary drainage instead of the large nephrectomy. It is a serious condition and I think we are sometimes led to do nephrectomy when a much shorter procedure would save some lives.

Hospital Ventilation and Lower Death Rate.—If we could control the temperature in the operating room—and we can—and could cut down by 20 per cent. the death rate, it certainly is worth at least considering. If we can reduce the time required for a patient's recovery, increase his comfort and help him in his fight for life, this also is to be considered and it can be accomplished through the right kind of ventilation and air control.—C. A. Eddy: *Hospital Management* **9**:45 (Jan.) 1920.

YELLOW FEVER CONTROL IN ECUADOR

FINAL REPORT

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A preliminary report on yellow fever control in Ecuador, already published,[1] described how an initial survey of Guayaquil was made with the object of accurately ascertaining conditions that favored the perpetuation of yellow fever in that city. Particular attention was given to the subject of water supply, with the attendant possibilities of menace from open containers as breeding places for the stegomyia mosquito, the bearer of yellow fever infection. It was found that, owing to scarcity of water, residents were obliged to store in tanks, barrels and similar receptacles a sufficient supply for a considerable future need. Such receptacles, of course, constitute excellent breeding places for the stegomyia mosquito. In view of the fact that the people, through ignorance or carelessness, neglected to safeguard these sources of infection, the disease menace was great, for mosquitoes bred freely in the containers and carried infection broadcast. When it is realized that there were some 7,000 tanks in the city, and about 30,000 other containers, the problem of control will be manifest.

The campaign for the elimination of yellow fever actually started, Nov. 25, 1918. On account of certain local reasons it was not possible to equip all barrels and similar containers with covers, so in containers other than tanks certain fish were used to destroy the mosquito larvae. In the case of the tanks, effort was made to provide suitable covers that would prevent mosquitoes from gaining access. The city was divided into sanitary districts, and inspections of containers were made regularly. The method in regard to farms outside the city of Guayaquil was to do away with all large containers; thus the problem was greatly simplified. Since the homes of most the farmers were on the river bank, it was found practicable to recommend small containers. These were just large enough for a twenty-four hour supply, and they could be replenished regularly.

Reports from various parts of Ecuador sometimes seemed to indicate that there might be endemic yellow fever centers besides the city of Guayaquil. A study of the records, however, quite clearly indicates that, on the contrary, persons visiting Guayaquil would become infected, migrate to nearby towns, and be stricken with the disease in these new localities. From these cases other persons would become infected, and the disease would in time become prevalent. These new centers, however, never became endemic, as is evidenced by the fact that no antilarvae measures were practiced outside of Guayaquil until the disease had been controlled in that city. Further, the records of the department of health prove that while the number of cases of yellow fever diminished in Guayaquil, they also decreased in the nearby towns; the opposite should have been the case if there had been actual foci in other sections of the country.

Chart 1 shows the movement of yellow fever from Nov. 25, 1918, to and including December, 1919. In the course of the campaign, of all receptacles of fresh

1. Connor, M. E.: Yellow Fever Control in Ecuador, J. A. M. A. **74**: 650 (March 6) 1920.

water examined a certain percentage were found to contain mosquito larvae: i. e., to constitute breeding places. This percentage, also shown on Chart 1, was determined by dividing the total number of fresh-water receptacles in which mosquito larvae were found by the total number of receptacles examined. The receptacles that were used for storing water were classified, for the sake of the work, as "tanks and other depositories." On the chart is shown, too, the rainfall from Nov. 25, 1918, through December, 1919. The data presented cover a total period of fifty-seven weeks. In Chart 2 are presented the number of yellow fever cases from January, 1918, to May, 1919; from that time to the present (June, 1920) no cases have appeared.

The seasons at Guayaquil are popularly classified as wet and dry. The latter season usually extends from July to December; the heaviest rainfall generally occurs between January and April. The barometric records for the city show that the total rainfall for the period embraced by the chart amounted to 59 inches, and that some rain fell every month of the year 1918. There were, to be sure, months in which the rainfall was almost nil; but even during those periods sufficient rain fell to prevent the ground from becoming quite dry, and the vegetation did not burn up, as it generally does during the dry season.

During the wet season, in endemic yellow fever centers there is always an increase of cases of this disease, owing to the increase in the number of stegomyia mosquitoes. This increase is logically explained by the fact that during the rainy period innumerable receptacles, such as bottles, tin cans and coconut shells, catch and hold the rain water and furnish ideal breeding places for the stegomyia mosquito. Of course, during the dry season these containers are no longer a menace. The 1918 epidemic of yellow fever in Guayaquil was partly attributable to the normal wet season. Another important contributory cause was the crippling of the department of health of Ecuador, among other government activities, because of revenue curtailment as a result of the war. This department, which was unfortunately one of the first to suffer in that respect, had not been able to function normally since 1915. Naturally, the public health was bound to suffer. The department of health, under whose supervision came the isolation and treatment of yellow fever patients and fumigation of habitations from which the sick came, made a serious effort to perform its functions, but the task was doubly difficult, first, because many of the benign cases could not be diagnosed within the infectible period, and, secondly, because many homes could not be satisfactorily fumigated on account of the structure of the buildings.

In combating the yellow fever epidemic of 1918, it was decided to follow a line of procedure suggested by the investigations of the preliminary survey. At the time of that survey, results indicated that water tanks were the preferred breeding places of the stegomyia mosquito. Therefore particular attention was concentrated on this class of container. For the purpose at hand, containers were differentiated by the classification "tanks" and "other depositories," the term "other depositories" signifying barrels, tins, pails, and similar fresh-water containers of a more or less permanent nature.

The inspectors' reports were arranged to show the number of tanks inspected and the number in which mosquito larvae were found; the same plan was followed with respect to the other water depositories. It was the practice to make at the end of each week calculations which showed what percentage of all fresh-water containers were breeding places for the stegomyia. The inspectors were instructed to consider as stegomyia larvae all mosquito larvae found in any fresh-water container in or near a human habitation. It was not thought advisable to ask the inspectors to attempt to differentiate between the different species of larvae, on account of the time that would have been required for them to do so. Great care was exercised in arriving at the figures shown on the chart; only containers that were actually in use were taken into account. For example, a merchant might have on his premises a large number of tins, none of which contained water or were used by the merchant as water receptacles. In such a case the inspector would examine these tins, but would not enter in his report any record of them; nor would he record a tank that was not in service unless that tank contained water. In the results shown in this report tin cans, bottles,

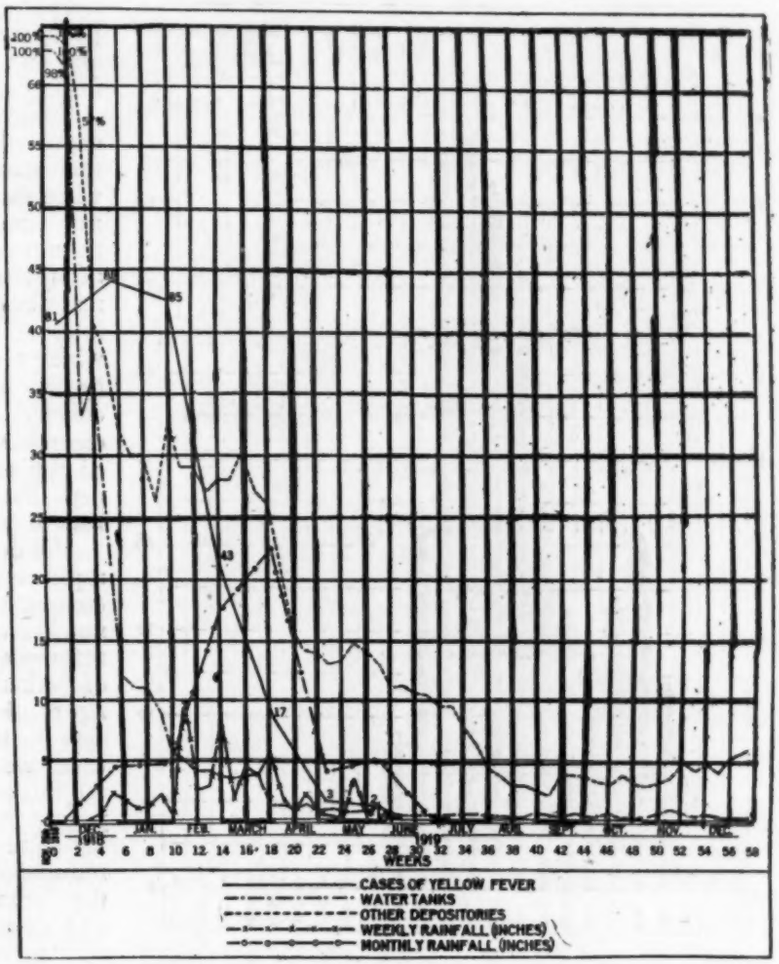

Chart 1.—Rainfall, and relationship between reduction in number of water depositories and decrease in number of yellow fever cases.

and other articles of a similar nature strewn about the patio or yard, have not been considered. The inspectors counseled the occupants of premises to gather such containers and place them on the street front for collection by the garbage service. The explanations given above are to be borne in mind for a full understanding of this report.

By the time the record reproduced as Chart 1 was begun—Nov. 25, 1918—all water receptacles (100 per cent.) had become mosquito-breeding places. It is not known exactly when the 100 per cent. mark was reached, but there is no doubt that the time when the increase in the number of breeding places began was when the national department of health was first

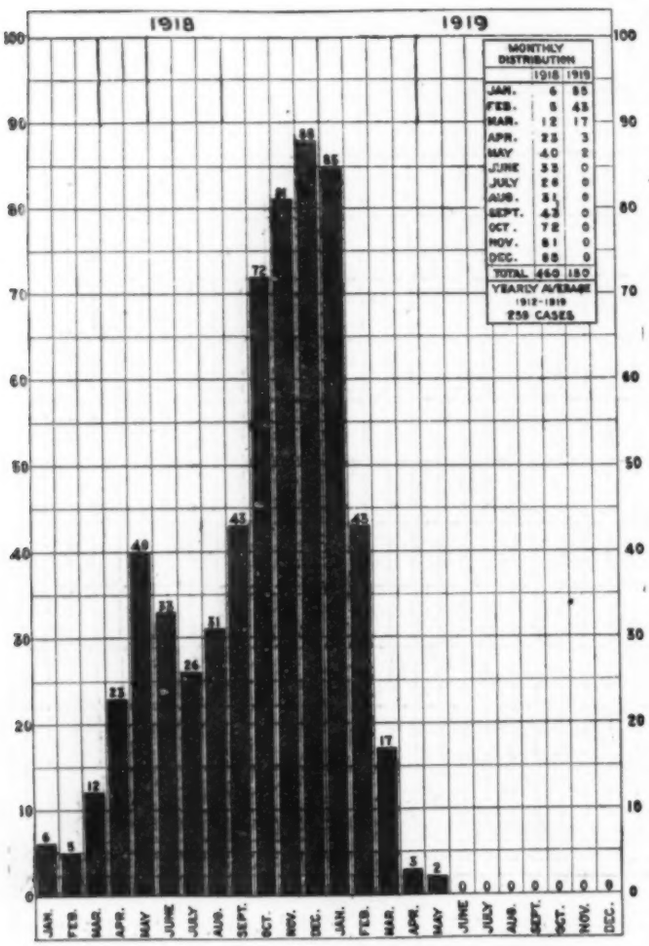

Chart 2.—Record of yellow fever cases in Guayaquil, from January, 1918, to December, 1919.

obliged to relax its efforts at control. In view of the tremendous handicap that conditions imposed at the very beginning of the campaign, the results accomplished were the more striking. Reference to the chart will give the reader graphically the principal high lights in the course of the operations.

As early as at the end of the second week after work had been begun, a 2 per cent. reduction (i. e., to 98 per cent.) in breeding places in tanks had been effected. By the end of the fourth week a remarkable decline had taken place—to 36 per cent.—and a rapid decrease continued for some two weeks after that.

Now if it was true, as was suspected, that the tanks were the preferred breeding places of the stegomyia mosquito, then clearly a 50 per cent. reduction in this type of breeding place should be reflected in a corresponding reduction in the number of cases of yellow fever. In order, however, to judge accurately concerning the decrease in the number of cases, it must be remembered that allowance has to be made for certain cases infected by mosquitoes bred before the tanks were covered. As the chart indicates, the number of cases did decrease as the number of tank breeding places was reduced. The high point in the number of yellow fever cases came in December, 1918. At this time, to be sure, the campaign had been in progress for about five weeks, but virtually all of that period had been consumed in mosquito-proofing tanks. Naturally, results could not have been expected before the effects of this work could be felt. The chart shows during the fourth week of operations a slight irregularity in the "tanks" curve, which is explainable by an increase that occurred in the number of districts and an accompanying increase in the number of tanks inspected.

Comparison of the "tanks" curve with the "cases" curve will show that from the time the cases reached their maximum—in December, 1918—down to the time when they were reduced to two a month, the two curves ran almost parallel, and that the first real decrease in number of cases took place about two months after the number of tank breeding places had been materially reduced. In other words, that two-month interval was the period already referred to, during which a certain number of cases inevitably are caused by the bite of mosquitoes bred before the tanks are covered. It is interesting to note here that the few experiments carried out showed that about 70 per cent. of the adult female stegomyia mosquitoes died on depositing their eggs, and that no female lived over four days when deprived of water.

The decline in the "other depositories" curve is less rapid and less regular, merely because efforts were concentrated primarily on the reduction of the number of tank breeding places. It will be noted, by reference to the chart, that long before the number of "other depositories" had been reduced to a low figure, the yellow fever cases that occurred were as few as three a month. It was not long before the cases were only two a month, and shortly afterward the infection was entirely eliminated. In other words, yellow fever had been actually controlled before breeding places in "other depositories" had even been reduced to a low figure. This fact shows clearly that the "other depositories" were relatively unimportant, and substantiates the statement that the eradication of stegomyia breeding places in tanks was the most important factor in the control of yellow fever in Ecuador.

Chart 1, it will be noted, shows also that the percentage of breeding places in "other depositories" reached its lowest figure (2 per cent.) during September, 1919. From that time it rose. Before the end of the same year the percentage had reached as high as 6, and in April, 1920, it was 10. This increase, however, is readily explainable. It will be recalled that mention was made earlier in this article regarding the use of fish to control mosquito breeding in "other containers." The increase of breeding places among receptacles of the latter type was directly attributable to the fact that the supply of fish became exhausted, and it was not possible during the dry season to renew it.

Finally, with respect to rainfall and yellow fever, reference to Chart 1 shows strikingly that increase in rainfall bears no relation whatever to increase in the

number of cases. It will be seen, on the contrary, that as the rainfall increased from month to month to its maximum, the number of cases decreased from month to month until the last case occurred, in May, 1919.

SUMMARY

Water tanks proved to be the principal source of yellow fever infection in Guayaquil. Smaller containers, such as barrels, tins and pails, and similar fresh water containers, were relatively unimportant. A very definite correlation was established between the number of tanks which bred *Stegomyia,* and the number of yellow fever cases. The two factors ran almost parellel. The first real decrease in the number of cases followed about two months after a material reduction in the number of tank breeding-places. The cases thereupon became fewer and fewer until finally, when breeding was under control in virtually all the tanks, the disease had been eradicated.

The rise and fall in the percentage of smaller containers (barrels, tins, etc.) in which *Stegomyia* bred, had no effect on the incidence of the disease, nor did rainfall bear any direct relation to the number of cases.

CONCLUSIONS

As a result of the yellow fever work in Ecuador, it was possible to arrive at certain well-defined conclusions. With the idea that they may be of more than general interest, they are here set down:

The only endemic center of yellow fever in Ecuador was in the city of Guayaquil.

The principal factor in the eradication of yellow fever at Guayaquil was the mosquito-proofing of fresh-water containers, especially tanks.

When tanks are used in homes for storing fresh water, they will be the preferred breeding places of the stegomyia mosquito.

Fish as mosquito-larvae consumers produce excellent results in barrels and similar containers, and are an economical means of mosquito-proofing this class of fresh-water receptacle. Fish are not recommended for use in tanks, because the latter are placed high up to gain head pressure, and it would be necessary for the inspector to use a ladder whenever he inspected the tank to be sure that the fish were still alive. The necessity of all this extra labor is eliminated by covering and "sealing" the tank. Again, when the water is low in the tank there might not be enough to keep the fish alive.

Yellow fever has been eradicated from Ecuador, and if it should ever again become endemic it would be because it was introduced from a focus outside of the country.

Industrial Instability of Child Workers.—Within a year after they were legally permitted to go to work, one child out of every four in Connecticut left school for that purpose, according to the report on Industrial Instability of Child Workers by the Children's Bureau of the U. S. Department of Labor. This does not include the large number of newsboys and those engaged in agriculture and domestic service. Three fourths of the children went to factories, the largest number of boys going to the metal industries and girls to textile and clothing factories. Most of the work in which children are employed is temporary or seasonal. In the first month after starting work 10 per cent. of the boys and 8 per cent. of the girls were out of jobs for at least one week. The proportion of unemployment was less as the children became used to industry. Throughout their work histories the boys showed a greater tendency to unemployment than the girls.

DESTRUCTION AND REPAIR IN PULMONARY TUBERCULOSIS

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LOOMIS, N. Y.

Among the infections, the exciting organism of which has been identified and isolated, tuberculosis is remarkable not alone in its protean manifestations, but especially also for the varying reactions to it of the individual it attacks. There is perhaps no other of which our knowledge is so exact and complete so far as it relates to the tubercle bacillus itself and its immediate effect on the tissues in which it finds lodgment; but certainly, also, none is more obscure or offers wider and more promising fields for research in the phenomena exhibited by its host. It does not suffice, however, to know the morphology of *B. tuberculosis,* its cultural characteristics, and the histology of tubercle, or the pathologic alterations of tissue structure resulting from its activity. There is another and even more important series of reactions dependent on this, which, though largely of speculative interest at present, is probably of vastly greater importance in determining the course of the disease.

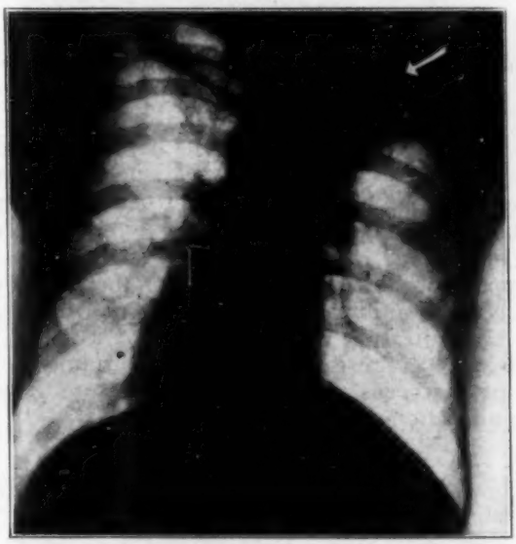

Fig. 1 (Case 1).—Condition on admission.

When a number of tuberculous persons are kept continuously under close daily observation, it is possible, as it rarely is on casual examination, to note slight, often apparently negligible or utterly irrelevant variations in their behavior, which in reality are indications of healing or progression of their disease. It is not unusual for persons exhibiting advanced lesions to pursue for some months or years an uninterrupted and favorable course, continuously proliferating the connective tissue elements which bring about healed lesions; yet frequently, too, those whose malady may not have passed beyond slight or moderate degrees of infiltration seem unable to summon to their aid those subtle forces of repair. Again, what appears a successful attainment of dependable improvement, with no alteration in the daily routine of life, may suddenly become hopeless deterioration.

These phenomena unquestionably are determined by structural alterations at the site of the lesion, or new implantations of tubercle elsewhere, which precede

Fig. 2 (Case 1).—Condition after eight months' treatment.

them in time and, it may well be, are themselves anticipated by variations, perhaps of virulence of the specific bacillus, perhaps of cell activity, or in the character of the blood or lymph streams. It is possible that in these, nervous stimuli, inhibitory or accelerator, originating often in the cerebral emotions, play an important part. At all events, there occurs an increased or diminished production or efficiency of toxin neutralization which, for lack of a better term, is spoken of as "resistance," and it is certainly possible in many instances to detect its fall before extensive tissue alterations have occurred.

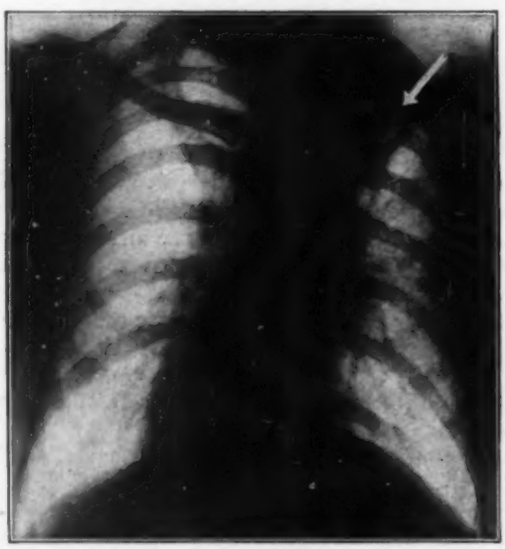

Fig. 3 (Case 1).—Condition on readmission.

The pulmonary implantation of the bacillus occurs without appreciable indications of its presence, and it is clearly understood that the cellular activity it excites may become well established, indeed may even advance to definite infiltration, without producing constitutional symptoms sufficiently significant to attract the attention of either physician or patient. Hence the diagnosis of clinical pulmonary tuberculosis in this, the truly incipient stage, requires, in addition to careful and expert physical examination, a minute consideration of the slightest variations from the normal in the daily reaction of the patient to the accustomed routine of life. Such variations are quite as significant later as indications of the course, whether favorable or otherwise, of the disease, and, as already noted, may be slight and apparently negligible. In general, those conditions which make for well being and an uninterrupted adherence to a wisely ordered regimen are helpful toward recovery, or, in other words, under such conditions resistance rises and connective tissue proliferation and replacement proceeds apace, while on the contrary, continued mental anxiety, sudden emotional disturbances, uncongenial surroundings, introspection and depression, quite as much as a faulty regimen, are responsible for lowered resistance and retrogression. It is under such strains, or following them, that unusual fatigue, headache, insomnia, "nervousness," irritability of temper, "the blues," loss of appetite, acceleration of

Fig. 4 (Case 2).—Condition on admission.

pulse, slight cyanosis, or dyspnea on exertion, even before the more notable symptoms of fever, loss of weight, increase of cough or sputum occur, frequently indicate progression of the lesions or the development of fresh tubercles and infiltration.

Under such circumstances, careful physical reexaminations must be made; and since so frequently slight alterations in the character of the lesion or new infiltration may be detected only with their aid, stereograms should be studied. Such reviews will often enable the clinician immediately to make a readjustment of the patient's regimen which checks further retrogression, but which, if delayed until the development of more significant symptoms, may not be availing.

A few clinical and roentgenographic records have been selected which illustrate these observations and the following inferences:

1. Variations in the clinical behavior of patients ill with active pulmonary tuberculosis are frequently indicative of their diminished resistance and the progression of their lesions.

2. Such variations, though slight and apparently negligible, may be as important indications of progres-

sion of the disease as are similar variations of its conception.

3. Such variations should suggest the importance of careful reexaminations which frequently disclose retrogression of the lesion before the advent of more marked symptoms, and make possible helpful modifications of the management of the patient.

4. Roentgen findings, and especially stereoscopic studies should be employed in addition to physical examination.

CASE 1 (4192).—The disease was moderately advanced. The onset had been insidious under strain of war work in addition to the patient's usual occupation. He was of labile temperament, but unusually intelligent and cooperative. Roentgenoscopy (Fig. 1) revealed slight disseminated infiltration of the right lung with an area of consolidation and fibrosis above the second rib anteriorly which enclosed a cavity measuring on the plate 4 cm. in diameter. There were also a few peribronchial deposits in the right lung. The patient was 13 or 14 pounds below his usual weight, and had a moderate cough and expectoration averaging from 14 to 18 gm. daily and containing many clumped bacilli (Gaffky vii). After eight months' treatment by rest and graduated exercise

Fig. 5 (Case 2).—Condition after eight months' treatment.

during which improvement was steady and progressive, he gained 20 pounds and felt entirely well. The bacillary content of the sputum had decreased, and in the last three months, expectoration was scant and bacilli absent. Medium râles heard above the fourth rib and midscapular region had cleared, only a few fine râles at the apex remaining. Roentgenoscopy (Fig. 2) revealed marked retraction of the fibrosed and consolidated area in the right upper lobe which now extended only a little below the first rib. The area of rarefaction was reduced from 4 to 1.5 cm. in diameter, on the plate.

The patient was discharged "apparently arrested" and advised to live within strict limitations. However, business cares immediately devolved upon him, and under mental strain he exceeded the limitations set. He noted an increased tendency to worry, and was nervous and irritable beyond his wont. Six weeks after leaving the sanatorium he had several small hemoptyses; and two weeks later, despite rest in bed, developed fever with increased cough and expectoration. On readmission these symptoms were marked, the afternoon temperature ranged to 100 F. (rectal), and the sputum contained many tubercle bacilli. Medium râles were heard above the fourth rib and midscapular region. Roentgenoscopy (Fig. 3) revealed an increase and relaxation of the area of consolidation in the right upper lobe and an extension of the area of rarefaction with new implantations in the middle and lower lobes.

After six weeks' rest treatment, general symptoms persisting, artificial pneumothorax was induced on the right side with only partial collapse of the cavity and partial alleviation of symptoms.

Fig. 6 (Case 2).—Condition after twenty months.

Such cases demonstrate that while a cavity may be markedly retracted and even obliterated by surrounding fibrosis, with coincident disappearance of tubercle bacilli from the sputum, the closure may be impermanent. A weakened "resistance" may reestablish the ascendency of the process of destruction with recrudescence of both local and general symptoms, the only warning of such a change being slight and vague changes in temperament preceding, by weeks or longer, more tangible signs.

Very similar anatomic changes are shown by Case 2, except that the course of repair has continued without interruption.

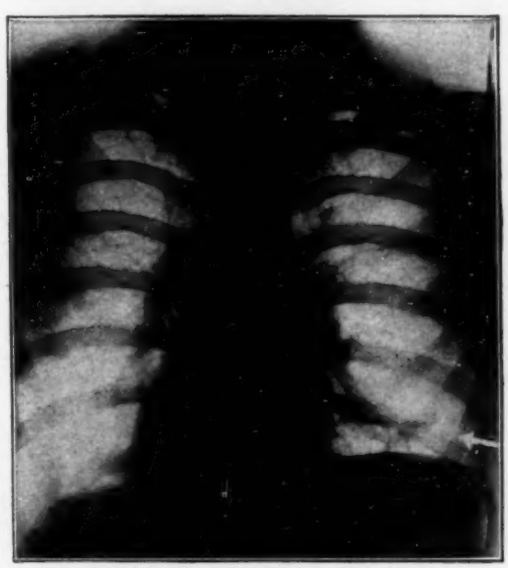

Fig. 7 (Case 3).—Condition on admission.

CASE 2 (4230).—The disease was moderately advanced. Constitutional symptoms were not marked and were characterized by low fever. The sputum varied during the first four months from 25 to 114 gm. daily, and contained many tubercle bacilli (Gaffky iv to ix). Roentgenoscopy (Fig. 4) revealed a slight infiltration of both lungs, with a large,

moderately heavy walled cavity, 4.5 cm. in diameter (on the plate) extending from the apex to the second rib.

During more than a year the patient was almost constantly febrile and was given bed treatment, notwithstanding which

Fig. 8 (Case 3).—Condition later.

there was progressive gain in weight with diminution of local symptoms. After eight months' treatment the sputum averaged 32 gm. daily and contained only a few bacilli. Roentgenoscopy (Fig. 5) revealed an increased deposit of fibrosis which had retracted upward and had reduced the cavity to the dimensions of 2.5 by 4 cm. on the plate.

During the remainder of the period of twenty months, a gradual regression of both local and constitutional symptoms continued; and for nine months, except for a few on one occasion, the sputum has been free from bacilli and much reduced in amount. Roentgenoscopy (Fig. 6) revealed further retraction of the area of fibrosis in the right upper lobe, with almost total obliteration of the cavity.

Case 3 exemplifies new implantations of tubercle not revealed by physical signs.

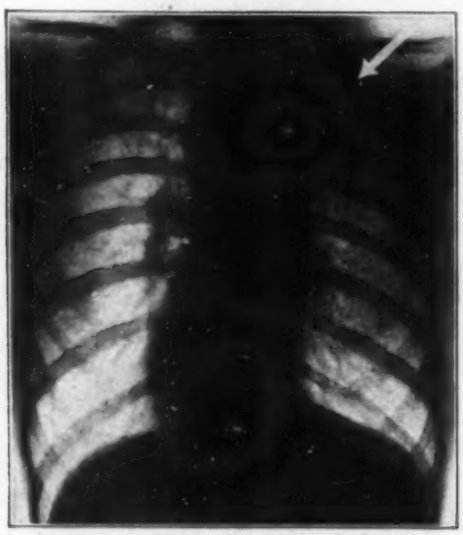

Fig. 9 (Case 4).—Condition on admission.

CASE 3.—The patient had an apparently healed lesion of the right lower lobe and was working from six to eight hours daily. Roentgenoscopy (Fig. 7) revealed an old infiltration and fibrosis extending downward and outward from the hilum into the right lower lobe with marked diaphragmatic adhesions. A few small peribronchial deposits were scattered through both lungs.

Following a slight "cold" with low fever, and symptoms of little severity, convalescence was protracted and marked by vague symptoms of joint pains, most severe in the thoracic spine, slight spasticity of certain muscles, paresthesia, insomnia and lassitude, manifestations which suggested vertebral involvement, but gradually subsided, giving place to a small hemoptysis. Several physical examinations disclosed no change in the pulmonary signs. Roentgenoscopy (Fig 8) detected no change in the right basal lesion. At both apexes and in the first interspace on the left, there were a few isolated, light parenchymatous deposits not shown in previous roentgenograms. Recovery was uninterrupted, but, in view of these findings, a prolonged rest was advised.

The point to be emphasized is clear. From physical signs and the train of symptoms alone, the logical assumption might well have been that a relatively unimportant reactivation of the healed lesion had occurred. In such instances only the roentgen findings can be relied on to lay bare the deception and to determine a proper regimen for the patient.

There is also ample evidence that infiltration may proceed to caseation and excavation, while unfavorable

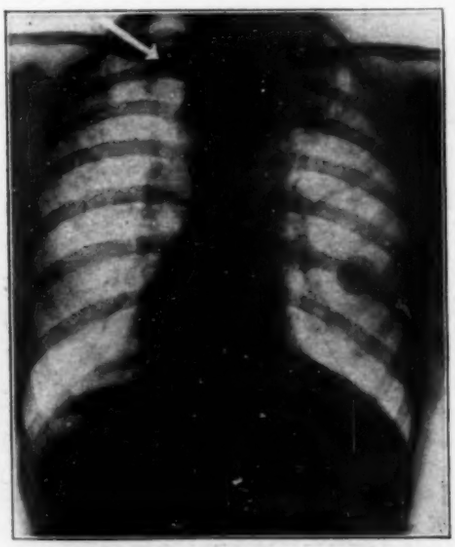

Fig. 10 (Case 4).—Condition later.

constitutional symptoms are very indefinite and local symptoms entirely absent.

CASE 4 (4095).—The disease was moderately advanced. The general condition was fairly good, with no expectoration. Roentgenoscopy (Fig. 9) revealed scattered infiltration of the right lung with a cavity in the upper lobe, and slight infiltration of the left upper lobe. For six and a half months satisfactory improvement apparently proceeded; then, with some loss of weight, there were noted nervousness, irritability and an increasing sense of undue fatigue. A few weeks later the sputum increased in amount and, for the first time, contained a few tubercle bacilli. It may be more than a coincidence that shortly preceding these symptoms personal animosities had created an environment incompatible with mental quietude. Roentgenoscopy (Fig. 10) revealed markings similar to those described except for a small cavity and slight increase in infiltration at the left apex.

Harmful Parasites of Man.—When an animal parasite acts simply in a mechanical way in transferring a micro-organism of disease to a man, it is called mechanical transmission. An example of this method of transmission is when a fly lights on typhoid feces, gets typhoid bacilli smeared on its feet, and then lights on a man's food, thus causing the typhoid bacillus to become parasitic in man.—*U. S. Nav. M. Bull.*, January, 1920.

PAPILLOMATOUS EPITHELIOMA OF THE KIDNEY PELVIS*

P. E. McCOWN, M.D.

INDIANAPOLIS

The scarcity of American case reports on this disease is my reason for this presentation. A rather careful search of the literature and further inquiry reveal that six American cases have been reported to date: (1) a case by A. O. J. Kelly[1] in 1900; (2) one by Babcock[2] in 1902; (3) one by Watson and Cunningham[3] in 1908; (4) one by W. E. Lower[4] in 1914; (5) one by E. S. Judd[5] in 1919, and (6) one by Hyman and Beer[6] in 1920. There are also two unreported pelvic papillomas, one by Dr. Burford of St. Louis and the other by Dr. Parmenter of Buffalo. Also Judd[5] refers to one operated on by Dr. C. H. Mayo. These, with the present report, make a total of ten American cases. With this group I have combined thirty-eight foreign reports, which bring the number studied to forty-eight papillary tumors of the kidney pelvis. (Abstracts of forty-six cases are presented herewith.)

Illustrating the rarity of this growth, Watson and Cunningham state that "of ninety-four cases of renal and perirenal growths occurring in the Massachusetts General and Boston City hospitals in ten years, there has been but one case of renal pelvic tumor, a papilloma." Judd states that in the entire series of 207 cases of tumors of the kidney in the Mayo Clinic there was but one definite papilloma of the kidney pelvis.

REPORT OF CASE

History.—A woman, aged 58, widow for fifteen years, mother of two children, was referred by Dr. W. H. Foreman, Sept. 19, 1918, because of pyuria. The family history was incomplete. The father died very young, cause unknown. The mother died in the fifties from some form of asthma. The patient was quite sure that there was neither cancer nor tuberculosis in the family. The patient had had no serious illness. Childbirths and menstrual life were normal. The menopause was passed four or five years before without any unusual symptoms. There had been two attacks of bronchitis.

In September, 1917, she had passed "some blood" in the urine. She felt normal until January, 1918, at which time she had constant headache. Urinalysis at this time revealed pus. In February, 1918, the hematuria returned, with the passing of clots. The patient noticed tenderness in the right loin. The symptoms ceased after four days, and the patient was well for two months, when there was a recurrence of hematuria. Cystoscopic examination was made by a Seattle physician, who reported that there was no infection, but he suspected stricture of the ureter or tumor; no treatment was recommended. There was a return of headache with general weakness, loss of appetite and loin tenderness in June. These attacks, accompanied by slight hematuria, were recurrent at short intervals until the patient came under our observation.

Physical Examination.—The patient was short and very heavy, with a pendulous abdomen. The color of the skin was good. The reflexes were normal. Blood pressure was 150 mm. of mercury; pulse pressure, 40 mm. The heart and lungs were normal except for a possible evidence of chronic bronchitis. The extremities were normal. The abdomen was tender in the region of the right kidney, which was not palpable because of the thick abdominal walls. A catheterized specimen of bladder urine revealed a small amount of albumin, numerous pus cells, few red blood cells and epithelium which seemed to come from the ureter and pelvis. A stained sediment contained staphylococci and colon-like bacilli.

Cystoscopic Examinations: The bladder capacity was 400 c.c. The urine spurted normally from both ureters. Taking origin from within the orifice of the right ureter was a papilloma slightly larger than a B. B. shot. This was removed through the cystoscope and found benign. Examination of segregated urines revealed the left kidney apparently normal, while the right urine contained epithelial cells which we were unable to identify. The phenolsulphonephthalein output of the right kidney was about one third of the total. Operation was advised for probable tumor.

Operation and Result.—In St. Vincent's Hospital, Oct. 7, 1918, the right kidney was removed with 2 inches of normal ureter. The patient made an uneventful recovery and was discharged, October 29, at which time the wound had completely healed.

After leaving the hospital, the patient made reports weekly that she was rapidly regaining her strength until three months later, when she reported at the office complaining of returned hematuria. Cystoscopic examination revealed a small papilloma springing from the orifice of the right ureter. This was destroyed by fulguration, the wire being passed 2 cm. within the ureter in an endeavor to make sure of total destruction. There was also a very tiny papilloma springing from the border of the left ureter. Urine from the remaining kidney withdrawn by the ureteral catheter was normal. Subsequent examinations revealed three more recurrences of papilloma about the right ureteral orifice, with the left kidney and ureter remaining in good condition. While the patient's general health on the whole remained good, it became apparent that complete removal of the ureter was necessary to prevent recurrence of vesical papilloma and possible metastases.

Fig. 1.—Exterior surface of opened kidney and pelvis having been split, showing cauliflower-like growth.

With the cooperation of Dr. Goethe Link, transperitoneal ureterectomy was performed, Feb. 5, 1920. The patient again made a good recovery. February 26, cystoscopic examination revealed the scar of the bladder mucosa in good condition. April 23, the bladder capacity was 420 c.c. The bladder mucosa was normal. The scar edges were smooth. Healing was complete. There was no evidence of recurrence in scar or any other portion of the bladder. The general health of the patient was excellent.

Pathologic Report (by Dr. Virgil H. Moon).—The specimen consists of a kidney with about 1 inch of ureter attached. The kidney is small, weighing 115 gm. (3⅘ ounces). The

* Read before the Section on Urology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Kelly, A. O. J.: Proc. Path. Soc. Philadelphia, 1900.
2. Babcock: Am. Gynec., June, 1902.
3. Watson, F. S., and Cunningham, J. H.: Diseases and Surgery of the Genito-Urinary System, Philadelphia, Lea & Febiger, 1908.
4. Lower, W. E.: Surg., Gynec. & Obst., February, 1912, p. 151.
5. Judd, E. S.: Journal-Lancet **39**: 247 (May 15) 1919.
6. Hyman, H., and Beer, Edwin: Amer. Urol. Soc., March 25, 1920; Tr. A. U. A., 1920.

capsular surface is irregularly congested, showing mottled areas of deep red. Both cortex and medulla are compressed and reduced in amount. The pyramids and their papillae are flattened and the pelvis and calices distended so that the cortex and medulla form a shell-like structure with an average thickness of 9 mm. (three-eighths inch). The color of the kidney substance is pale yellowish brown. The dilated pelvis is lined throughout with a pinkish white growth from 3 to 4 mm. in thickness. This growth is soft, fragile and irregular, somewhat resembling cauliflower. On close inspection the growth is found to consist of numerous fringelike or villous projections closely crowded together. The growth is separated from the kidney substance by a thin layer of fibrous tissue. It is sharply limited by this, and shows no tendency to break through and invade the kidney substance.

The portion of the ureter present with the specimen is distended to a diameter of about 10 mm. and is lined throughout by a growth exactly similar to that lining the kidney pelvis.

Microscopically, the growth is found to consist of rather elongated epithelial cells arranged several cells deep on

Fig. 2.—Inner surface of the cut kidney, showing smooth border of normal kidney substance surrounding papillomatous growth.

numerous, irregularly branched stalks of fibrous tissue containing blood vessels. These stalks constitute the stroma of the growth, and arise directly from a rather regular fibrous partition which separates the growth from the kidney substance. The projecting stalks covered by several layers of epithelial cells give the growth a distinctly papillary character. At no point is the epithelial growth found to break through and invade the kidney substance.

The epithelial cells are quite regular in size, shape and arrangement. They are elongated, almost columnar, in shape. They are arranged upright or at right angles to their supporting stroma, in which particular they differ from the arrangement of ordinary squamous epithelium. The nuclei are oval, and have a fairly dense network of chromatin. The cytoplasm is clear, and is less in amount than in normal epithelium. A few mitotic nuclei can be found, but these show no irregularities of structure. There are no areas of necrosis or hemorrhage.

On the whole, the growth lacks the characteristics usually present in malignant epithelial neoplasms. Its structure is definitely that of a papillomatous epithelioma.

STATISTICS OF CASE REPORTS

The exciting cause of these tumors is not known. Some authors are inclined to ascribe the cause to inflammation, others to pelvic stone. However, in our study of forty-seven reports we find calculi mentioned only ten times and infection three. Ages vary widely; the youngest patient was 32, while the oldest was 86 years of age.

Divided into decades of life, there were five patients in the thirties, seven in their forties, seventeen in the fifth decade, nine in the sixth, three in the seventh and one in the eighth.

There were twenty-seven men and fifteen women; in five, sex was not mentioned. In seventeen instances the left kidney was involved, as compared to twelve on the right side. Data as to the side involved were not attainable in seventeen cases. Both kidneys were found involved in one case, that of Murchison.[7] Extension of the tumor or secondary growths on the ureter was found in twenty-three cases; involvement of the ureteral orifice or bladder, seventeen times.

In listing the symptoms, hematuria was reported in twenty-three cases and hematuria with renal colic in twelve cases, palpable tumor fourteen times and abdominal pain in eight instances, while in six cases there was reported frequency or painful urination. As illustrating the possible malignancy of this condition, eleven authors report metastasis as being present at the time of examinations or developing in the later course of the disease. It would seem, however, that all cases are potentially malignant since this is the outcome of untreated papillomas of the bladder.

It will be noted that hematuria is the most common symptom, being noticed in some cases as early as four and in one of Albarran's [8] cases seven years before the true condition was diagnosed. Hematuria is usually intermittent and painless in the beginning, but becomes more profuse and is accompanied in some instances by renal colic as the disease progresses. In a few cases there has been continuous hematuria for three or four months before the examination.

Pain other than renal colic caused by the passing of blood clots is not a common symptom. When present, it is of a dull aching nature and probably due to the distention and pressure within the renal pelvis caused by the growing villosity.

Palpable tumor was found in only one third of the cases. Reports indicate that these tumors vary from the size of a pigeon's egg to that of an infant's head. A number of patients were in very good flesh, even obese, making it impossible to palpate the smaller types of tumor.

Roentgenoscopy has not proved of much aid in the diagnosis of these conditions. Since common bladder papillomas are frequently found near the orifice of the ureter, the location has no significance; but should the tumor spring from within the ureter, as in this case, it would seem to indicate the strong probability of higher involvement. The finding of numerous unidentified bits of epithelium in the urine withdrawn from the kidney by one experienced in this work will help materially in the diagnosis of new growths. Since the kidney function is diminished in these cases, the usual function tests are of value. Of course, the possibility of tuberculosis and stone should be eliminated by the usual methods.

Nephrectomy is the treatment indicated, and since the ureter and bladder show a strong tendency to become involved, it would seem best to perform complete ureterectomy at the time the kidney is removed

7. Murchison: Tr. Path. Soc. London **31**: 563, 1870.
8. Albarran: Bull. Soc. de chir., 1898.

or soon after. Secondary growths on the bladder mucosa can be easily destroyed by fulguration unless they have become malignant. A study of these cases shows that malignancy is not an early development, giving all the more hope for complete cure by nephro-ureterectomy.

ABSTRACTS OF CASE REPORTS

CASE 1.[7]—A man, aged 65, had frequent hemorrhages and pain, and before that time had frequent urination. Death came from uremia caused by blood clots in the ureters derived from the pelvic growths of both kidneys. The necropsy revealed the ureter and pelvis of both kidneys enlarged; both ureters, especially the right, were studded by long villous processes, not forming a distinct tumor. The case was diagnosed villous disease of the bladder. It was found that both renal pelves were filled with long villous tumors, and in the lower part of both ureters kidney concretions were formed.

CASE 2.[9]—A woman, aged 70, for two years had had albuminuria and severe hemorrhages. She was operated on for strangulated hernia from which she died. Necropsy revealed the right kidney engorged with blood and extremely friable. The cortex was firm, but the pelvis was filled by a whitish yellow tumor attached by a thin, broad pedicle to the lower third of the pelvic wall. A number of other villous growths sprang from different portions of the wall. They consisted of a delicate fibrous stroma surrounded by epithelium.

CASE 6.[13]—This was a most interesting case of a man, aged 57, who had enjoyed fine health until he came in because of abdominal pain. Examination revealed a small tumor in the right side. Shortly afterward the patient went into collapse, marked dyspnea and rapid pulse. There was, however, no change in the tumor. The urine contained bile pigment and albumin, but no blood. The patient grew somewhat better, but about one week later had a recurrence, causing death. During this attack the tumor enlarged. Necropsy revealed a right kidney with two ureters, the superior closed by numerous villous growths that filled the upper half of the pelvis but did not infiltrate the cortex. The upper half of the kidney was greatly enlarged, while the lower half was apparently normal. Within the bladder there was a papilloma about 5 cm. from the ureteral orifice, and there was in addition hemorrhagic perinephritis. Microscopic examination of the tumor revealed the ordinary appearances characteristic of papilloma of the bladder.

CASE 7.[14]—A man, aged 55, for eighteen months had constant pain in the right loin, hematuria and progressive emaciation; he lost 34½ pounds. A soft, villous growth was found occupying the pelvis of the right kidney at operation, which was the size of the thumb and resembled similar growths of the bladder. This was removed by means of Volkmann's spoon. The small surface remaining was smooth and clean, but vascular. The thermocautery was used to stop the bleeding. Further examination revealed what seemed to be similar growths higher; but because of the serious condition of the patient, further operative treatment was abandoned. The patient improved for a while; but nine months later, after he had suffered for some time, the entire organ was removed. The subsequent history of the patient was not recorded.

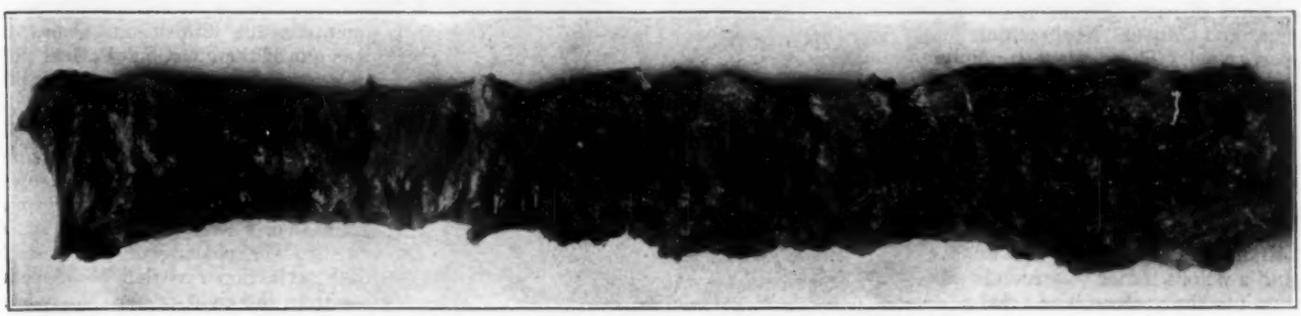

Fig. 3.—Opened ureter, showing growth on the lower two thirds (at the right) and the smooth mucous membrane of the upper third (at the left); at time of ureterectomy, this upper third was a pus sac.

CASE 3.[10]—A woman, aged 47, had severe cystitis, and while being treated for this died of peritonitis. Necropsy revealed, aside from the peritonitis, hydronephrosis of the left kidney caused by a large calculus. Microscopically, it resembled medullary carcinoma, showing an alveolar structure with variations in the relative amount of stroma and cells in different regions. Israel suggests the possibility of the carcinoma's being caused by the calculus. This growth was villous in character.

CASE 4.[11]—A woman, aged 32, who said she had suffered since she was 8 with pain in the right side, had had occasional hemorrhages nine years before entering the hospital. During the last few months she had developed a tumor which was very painful. The diagnosis was cystic kidney. Nephrectomy was performed and the patient was up on the twenty-second day. The specimen was entirely different from any others by the way in which the hollow stone capped the tumor. The openings from the calices into the renal pelvis were dilated; two were blocked by smaller brown calculi, which had caused the hydronephroses. Also, there was a villous growth which extended from the mucous membrane of the renal pelvis at the beginning of the ureter and in other parts of the pelvis.

CASE 5.[12]—A man, aged 54, whose case was diagnosed calculous pyelitis and obstruction of the ureter, died from operation. Examination of the left kidney revealed papillary carcinoma of the pelvis, involving the ureter; also a small calculus. The cancer had extended to the pleura and liver.

CASE 8.[15]—A man, aged 51, had passed a large calculus six years prior to observation, and a smaller one since; he also complained of pain and hemorrhage. At operation several dark round calculi and many smaller calculi, grains of these, were removed. In addition, a soft villous tumor was found in the lower portion of the pelvis. This was removed and the site of attachment scraped with a spoon. The patient recovered from operation, but at the end of five months, hemorrhages again occurred, and later there was constant pain and small calculi were passed. The patient again recovered. The development of the tumor was ascribed to the irritation of the calculi.

CASE 9.[16]—A man, aged 56, three and one-half years prior to admission to the hospital had suffered pain resembling renal colic at intervals, these attacks becoming more frequent of late. Other symptoms were painful micturition, hematuria, sometimes profuse, and a swelling in the left side of the abdomen. July 30, 1896, nephrectomy was performed but no stone was found; the patient died, November 11. At the necropsy the left kidney was found much enlarged and the pelvis and calices much dilated and covered with a delicate papillomatous growth. Delicate tufts of villous growths attached by a narrow base were also found all along the ureter. In the bladder

9. Roberts and DeMorgan: Tr. Path. Soc. London **21**: 239, 1870.
10. Israel: Virchows Arch. f. path. Anat. **86**: 359, 1881.
11. Thornton, Knowsley: Tr. Path. Soc. London **36**: 269, 1885.
12. Hartman: Bull. Soc. anat. de Paris **61**: 260, 1886.
13. Neelsen: Beitr. z. path. Anat. u. z. allg. Path. **3**: 277, 1888.
14. Jones: M. Chronicles **14**: 267, 1891.
15. Battle: Tr. Clin. Soc. London **33**: 235, 1895.
16. Drew: Tr. Path. Soc. London **48**: 130, 1897.

springing from the margin of the ureteral orifice there was a large papillomatous growth, the base of which did not appear to infiltrate the bladder wall. Microscopically, the tumor was found to be composed of branching villi of extreme delicacy, the terminal branches being round or club shaped. In some the epithelial cells were arranged so as to suggest the transitional type of epithelium of the urinary tract.

CASE 10.[17]—A woman, aged 58, died of hemorrhage. Necropsy revealed hydronephrosis, and on the mucous membrane of the renal pelvis could be seen "small pedicled tumors of a gelatinous nature." The ureter and bladder showed similar growths. In this case the liver and mesenteric glands were infiltrated with numerous cancer nodes. In the kidney itself there was no apparent change.

CASE 11.[18]—A man, aged 70, had hematuria for two years. On cystoscopy it was found that the right kidney ejaculated bloody urine. An exploratory incision was made and the kidney found to be normal. The hemorrhages continued. Cystoscopy two years afterward revealed blood from the right ureter and its orifice red and eroded. Nephrectomy was performed, and the kidney pelvis showed papillary growths. One year later hematuria returned. On operation, the upper part of the right ureter was found distended with a villous carcinoma. This was removed. The man died four years later of uremia, and toward the end there was carcinoma in the prostate and pelvis, and recurrence in the nephrectomy scar.

CASE 12.[19]—A man, aged 40, in his youth had had hemorrhages and had passed several calculi. He complained of pain. The urine contained pus and blood. Nephrectomy was performed. There was a papillary carcinoma of the kidney pelvis. Six months later it recurred in the lumbar and supraclavicular glands. The patient died.

CASE 13.[20]—A woman, aged 69, when well in her sixty-seventh year had noticed blood in the urine intermittently. The kidney was removed and a villous tumor was found reaching into the ureter. The renal pelvis and calices were much enlarged. In the upper half of the former, close to the ureter end, was a tumor mass, the size of a pigeon's egg, which inclined toward the ureter. Small, villous tumor masses were located on the entire mucous membrane of the renal pelvis and upper third of the ureter. There were villous-like excrescences from 2 to 15 mm. in length. Microscopically, they had the usual appearance of such tumors—a vascularized connective tissue stalk surmounted by a mantle of epithelial cells. The patient died one and one-half years later of metastases of the wound and surrounding structures.

Fig. 4.—Diagram intended to show papilloma springing from within ureter orifice.

CASE 14.[21]—A woman, aged 86, had a tumor the size of an infant's head, on the left side. An oblique incision was made over the swelling. The patient died during the operation. Examination of the specimen revealed a huge hematonephrosis with papillary cancer of pelvis and ureter.

CASE 15.[22]—A man, aged 34, with hemorrhages, was found to have a tumor in the left side. Cystoscopy with catheterization of the ureter gave 80 gm. of bloody urine containing a number of polymorphous epithelial cells, great numbers being cylindric, some of the pavement type. Lumbar nephrectomy was performed. The specimen showed papillary epithelioma. It had not returned six years later.

CASE 16.[23]—A man, aged 44, brought to the hospital, Oct. 1, 1897, with delirium tremens and a severe hemorrhage, had noticed blood in the urine for one week, six months before. A large tumor was found in the left hypochondrium extending down to the umbilicus. The patient died, October 5. The postmortem revealed the tumor to be the left kidney. There was a calculus in the renal pelvis, and the mucous membrane was covered with soft villous growths which extended into the ureter 1½ inches. There was no epithelial ingrowth into the wall of the ureter or the renal pelvis. Stone caused the hydronephrosis.

CASE 17.[24]—A man, aged 41, with severe pain and hemorrhage, underwent nephrectomy and partial removal of the ureter. Examination of the specimen revealed a whitish mass of small villous tumor on the mucous membrane but not penetrating the kidney. The growths extended toward the bladder. The patient died one and one-half months afterward. The diagnosis was cancer of the kidney pelvis extending into the ureter. It is not known whether it was malignant or benign at the start.

CASE 18.[25]—A man, aged 49, had had a tumor since he was 25. About his fortieth year the tumor became enormous. Nephrectomy and partial removal of the ureter were performed. The patient recovered nicely from the operation, but one year later there was a return in the scar. This was removed. The man died two years later of general debility. Examination disclosed a large cyst with papillary cancer of the pelvis of the kidney.

CASE 19.[26]—A patient who suffered severely had profuse hemorrhage, making cystoscopy impossible. The bladder lavage brought forth great quantities of villosities. Operation was out of the question. Patient died in a short time. At necropsy, papillary cancer of the kidney pelvis was found.

CASE 20.[1]—A woman, aged 61, complained of hematuria and severe renal colic for the year prior to examination. The family physician recalled the passing of two calculi. Catheterization revealed blood coming from the right ureter. At operation it was found that a tumor occupied the upper half of the kidney, which was removed. The patient convalesced and for some months was in fine health. She died nine months later, of unknown cause; but there had been no recurrence. Examination of the specimen revealed a mass the size of a walnut taking origin from the mucous membrane of a crater-like excavation in the upper half of the kidney. On close inspection, octopus-like prolongations were seen extending into the kidney tissue but not of the renal parenchyma. The excrescences were composed of connective tissue stalks of loose alveolar tissue, in the center of which was a small capillary vessel. These stalks were surmounted by from fifteen to twenty layers of cylindric epithelium.

CASE 21.[26]—A man at the age of 43 had sudden hematuria and pain in the left renal region which, during the next seven years, had not entirely disappeared. In his fiftieth year, bladder hemorrhages caused him to enter the hospital. Nephrectomy was performed by Professor Schuhardt. The patient recovered, but died of exhaustion four and one-half months later. The inner surface of the renal pelvis was covered with fine villi. There was a tumor in the bladder the edge of which was covered with numerous long villi. This was originally benign, but within a few months had become malignant.

CASE 22.[26]—A man, aged 61, was operated on by Professor Häckel, who removed a kidney tumor under great difficulties.

17. Rayer: Traité des maladies du rein.
18. Fenwick: Ureteral Meatoscopy in Obscure Diseases of the Kidney, p. 80.
19. Fenwick: Ureteral Meatoscopy in Obscure Diseases of the Kidney, p. 186.
20. Kohlhardt: Virchows Arch. f. path. Anat. **168**: 565, 1897.
21. Toupet and Guerniot: Bull. Soc. anat. de Paris, 1898.
22. Bradford: Tr. Path. Soc. London, 1898, p. 171.
23. Poll: Beitr. z. klin. Chir., 1899.
24. Pantaloni: Arch. prov. de Chir., 1899.
25. Blum: Report of the Eleventh Congress of the German Urologic Society, 1900.
26. Busse: Virchows Arch. f. path. Anat. **148**: 565, 1897.

The operation was apparently successful, but the patient died four weeks later of abscess and hemorrhage from the lungs. The renal pelvis was covered with small, wartlike elevations on the mucous membrane, some with broad bases, others with threadlike pedicles, similar ones being present along the ureter, thickest near the orifice into the bladder, where a tumor the size of an egg was found. There was a small papilloma near the orifice of the right ureter. These growths were diagnosed as benign from the histologic formation of the tumors and also from the patient's history. Suffering could be traced for twenty years.

CASE 23.[27]—A woman, aged 37, had severe hemorrhages. Examination revealed a huge tumor which protruded across the liver at the crest of the ilium. Transperitoneal nephrectomy and partial ureterectomy were performed. The patient recovered from the operation, but died eight months later from an unknown cause. Examination of the kidney disclosed cancer of the pelvis and a stone the size of a pigeon's egg. The tumor on examination proved to be a villous papillary cancer.

CASE 24.[28]—A man, aged 51, had a villous growth of the renal pelvis. Near the entrance to the bladder a new growth could be seen that covered the last 3 cm. of the ureter. The patient had had a hemorrhage four years before, and since had had a few, more or less severe. There was no pain, but by palpation the kidney was found much enlarged. Puncture found a bloody liquid. Nephrectomy was performed; also removal of the ureter. Examination of the kidney revealed villous papilloma of the pelvis and ureter.

CASE 25.[29]—A woman, aged 61, complained of severe renal colic and hemorrhages. A diagnosis of calculi was made. Incision disclosed a papillary cancer of the renal pelvis. Nephrectomy was performed. Patient died three months later of a pulmonary infection.

CASE 26.[30]—A merchant, aged 58, came to Jeanbrau in April, 1901, for repeated hemorrhages which became very severe. On operation a tumor of the pelvis the size of a small egg was found resembling a cauliflower. The patient recovered from the operation, and trace was lost of him.

CASE 27.[30]—A woman, aged 44, complained of pain and had severe hemorrhages. On examination a large tumor was found that was painful to the touch. Lumbar nephrectomy was performed with complete recovery. Examination of the specimen revealed a papillary epithelioma of the kidney pelvis which was large enough to exert great pressure on the kidney parenchyma.

CASE 28.[31]—A man, aged 59, had hemorrhages and was seriously ill. The condition was diagnosed as vesical tumor. A cystotomy did not improve the patient's condition, so a nephrectomy was performed. The patient died six days later. Examination revealed a villous papillary epithelioma of the kidney pelvis.

CASE 29.[32]—A man, aged 56, had a villous cancer in the dilated calices and simple papillary tumors of the bladder and ureter.

CASE 30.[33]—A woman, aged 72, four years previously had had severe hemorrhages and was very ill at the time of the operation. A tumor was found about the size of an infant's head. She died three months later from metastases of the liver. Examination of the specimen revealed hydronephrosis, with papillary cancer of the kidney pelvis involving the ureter.

CASE 31.[34]—A woman, aged 65, had had intermittent attacks of hematuria for four years. For the last four months the bleeding was continuous. No local pain or rise in temperature had occurred until the last month, during which there were attacks of lancinating pain in the right loin. No enlargement could be found in this region. The cystoscope revealed a papilloma obscuring the orifice of the right ureter, and another in the base of the bladder. Suprapubic cystotomy was performed with removal of the bladder tumors, and the ureters were catheterized. The bladder was then closed and right lumbar nephrectomy was performed. Examination of the specimen revealed thin stalks of tissue coming from the surface of the kidney pelvis, dividing into branches. On these branches was seen much epithelium rich in chromatin. The cells were polymorphic, and many showed the process of mitoses. The diagnosis was papillary epithelioma of the kidney pelvis.

Fig. 5.—Low power photomicrograph (reduced) showing papilloma springing from unbroken mucous membrane.

CASE 32.[35]—A man, aged 34, had had kidney colic four years, during two and one-half years of which he had hematuria. On palpation the kidney was extremely painful; the urine was dense, turbid and bloody. The kidney, when removed, weighed 650 gm., with the pelvis and calices much enlarged. The kidney and ureter were removed, complete ureterectomy being performed. The microscopic examination revealed a typical papillomatous proliferation of the cylindric epithelium of the renal pelvis and ureter. Numerous glandular nodules caused Mione to diagnose the case a papillary adenoma.

CASE 33.[36]—A woman, aged 54, had hematuria for nearly three years. In March, 1905, she was operated on for hemonephrosis. The kidney was not removed. She returned in September, not improved. The left kidney was removed on a diagnosis of a unilateral hemorrhagic nephrosis. On the kidney pelvis, benign cauliflower-like new growths were found. Nine months later hematuria had returned and cystoscopic

27. Grohe: Deutsch. Ztschr. f. Chir., 1901, p. 25.
28. Israel: Berlin. klin. Wchnschr. **38**: 655, 1901.
29. Jeanbrau and Etienne: J. d. urol. **2**: 235, 1902.
30. Josselin de Jong: Beitr. f. path. Anat. u. z. allg. Path. (Ziegler's), 1904, p. 205.
31. Retslaff, O.: Inaug. Diss., de Greifswald, 1904.
32. Savory and Nash, quoted from Lower (Footnote 4).
33. Pels Leusden, 31st German Clinical Congress, p. 137.
34. De Graeuwe and Wanthy: Ann. Soc. belge de chir., 1906.
35. Mione, G.: Riv. Veneta di scienze med., 1904, p. 218.
36. Derewenko: Zentralbl. f. Chir. **36**: 654, 1909 (quoted from Lower, Footnote 4).

examination revealed a papillomatous formation projecting from the ureter which was extirpated by opening the bladder. Six months later she complained of lumbago, paraplegia, retention of urine, and paralysis of the bladder and rectum. Later, gangrene set in causing death. Necropsy revealed the second and third lumbar vertebrae destroyed by a tumor in the left lumbar region, which also had caused metastases in the liver and lungs. The diagnosis was villous cancer.

Case 34.[37]—This patient was operated on by Albarran for vesical papilloma of the bladder. There was a return of severe and continuous hematuria. The ureteral catheterization revealed the right kidney to be of small function, but left lumbar nephrectomy was performed with operative recovery. Nine months later there was a return of the hematuria, and on examination there was revealed a tumor in the left ureter orifice involving the left side of the bladder. Partial cystectomy and removal of 6 cm. of ureter was performed. The patient died fifteen months after the second operation from metastases.

Case 35.[38]—A man, aged 51, suffered pain and hematuria. A bloody urine came from the left kidney. Nephrectomy and partial ureterectomy were performed. The patient made an operative recovery, but six months later the papilloma had appeared in the bladder. Further history was unattainable.

Case 36.[39]—A man, aged 45, complained of severe pain and profuse hemorrhages. The first hemorrhage was spontaneous six years before. Since then he had had three crises of kidney colic accompanied by abundant hemorrhages. Some time later the hemorrhages returned with pain in the right side, being exaggerated by walking and likewise by respiratory movements. On examination a large movable tumor was found lying in the right costo-iliac region, pressing against the lumbar muscles. Transperitoneal nephrectomy was performed. The patient died one year later very cachetic. The diagnosis was papillary epithelioma of the kidney pelvis.

Fig. 6.—Larger magnification (reduced) of Figure 5, showing piled up mantels of epithelium on branching connective tissue stalk.

Case 37.[39]—A man, aged 60, complained of kidney pain followed by spontaneous bleeding. The kidney was enlarged on the right side. On ureteral catheterization the urine from the right kidney was bloody and low in salts and urea. Nephrectomy was performed and examination of the specimen revealed papillary epithelioma of the kidney pelvis with the ureter normal. However, three years later a papillomatous pedicle protruded from the orifice of the ureter. Immediate ablation of the remainder of the ureter was performed. Six years later the patient was still alive, but had developed carcinoma of the prostate and pelvis.

Case 38.[40]—A man, aged 53, entered the Velpeau ward at the Necker, March 26, 1912. Seven years before he had had two mild attacks of hematuria. During the last year the attacks became numerous, and for the month preceding admission the hemorrhages had been continuous. The patient complained of urgency and frequency of urination and pain in the left loin. A tumor was found in the left flank extending from under the ribs to the iliac crest, and on the front from the ribs to below the horizontal plane of the umbilicus. The cystoscope revealed papillomatous tumor in the bladder. Nephro-ureterectomy was performed, April 4, 1912. The specimen showed the pelvis and ureter full of papillary tumors revealing the same characteristics as those of the bladder. There was a partial thrombosis of the arteries and veins with cancer. The patient made an operative recovery.

Case 39.[4]—A woman, aged 63, reported back strain, from lifting, five years before. She had had hematuria for the last three years. There was a dull pain in the back, mainly in the region of the left kidney, which was palpable and tender. Cystoscopic examination revealed left hematuria and two small papillomas bordering the left ureter. Exploratory operation was performed, Oct. 26, 1912. A slightly enlarged kidney with a very much distended pelvis was removed. The bladder was opened and the papillomatous growths were excised. The patient made an operative recovery, but had return of hematuria in three months. At this time tumors were found protruding from the ureter orifice. Complete ablation of the remaining ureter with the removal of a segment of the bladder wall was performed. Recovery was uneventful. Repeated cystoscopic examination revealed finally a small tumor mass at the site of the ureterectomy scar. This was removed by fulguration. Since that time there has been no apparent recurrence. The pathologic report was malignant papilloma of the kidney pelvis, ureter and bladder. The kidney pelvis was discovered to be full of fringelike villous growths.

Case 40.[41]—Matsuoka performed a nephrectomy on the diagnosis of pyonephrosis, and found a purulent kidney with villous growths in the pelvis and ureter. The growths had invaded the connective tissue framework beneath the mucous membrane.

Case 41.[42]—At necropsy a kidney was found, the pelvis of which was covered with masses the size of a hazelnut which had extended to the wall of the ureter. The histologic picture of the neoplasm showed fine connective tissue stroma surrounded by mantles of polymorphous epithelial cells.

Case 42.[5]—A man, aged 55, complained of hematuria and frequency of urination. The patient was a large man with considerable blood in the urine. The left kidney was not functioning. A diagnosis of tumor or polycystic condition was made. A left anterior abdominal exploratory incision was made. The right kidney seemed normal. A soft tumor could be palpated in the pelvis of the left kidney which was removed with 2 inches of normal ureter, Nov. 7, 1917. Hematuria recurred, necessitating ureterectomy, Jan. 3, 1919. Recovery was complete. The kidney pelvis was found to be completely filled with papilloma, diagnosed as malignant because in places the epithelium seemed to penetrate into the submucous strata. The ureter specimen was filled with papilloma of the same type as that which had been found in the pelvis.

37. Legueu: Bull. et mém. Soc. de chir., Dec. 21, 1909.
38. Mecker: Wien. med. Wchnschr., 1911, p. 2394.
39. Albarran: Thèse Mock, Paris, 1912.
40. Picot: J. d'urol. 2: 699 (Nov.) 1912; Thèse Mock, Paris, 1912.
41. Matsuoka, quoted from Lower (Footnote 4).
42. Hedenius and Walenstroen, quoted from Lower (Footnote 4).

CASE 43.[43]—A tumor appeared at the left ureteral meatus. The growth was rather small, and responded to fulguration treatment. The patient was observed for three weeks. The bladder appeared to be healed, when there was severe bleeding. This bleeding came from the left kidney, which proved to be without function, while the right kidney did the work. Nephrectomy and complete ureterectomy were performed, revealing a definite papillary tumor of the kidney pelvis, involving the ureter. This man was only 34 years old.

CASE 44.[44]—A man, aged 50, admitted to Mount Sinai Hospital in October, 1916, a painter, had had attacks of plumbism, was addicted to the excessive use of alcohol and tobacco, and had had gonorrhea eighteen years before, with no complications. The present illness began eighteen months before with frequency of urination, every ten to fifteen minutes; one week later the patient noticed blood in the urine, which ceased spontaneously a few days later. There had been hematuria most of the time for the last year, with tired feeling, no pain, and loss of weight (60 pounds in a year and a half). Physical examination revealed no lumbar tenderness, and the kidney was not palpable. Cystoscopy revealed a bladder papilloma near the urethral orifice, and blood coming from the left kidney. The patient died in the hospital from apoplexy. The postmortem report revealed the left kidney one and one-half times the normal size. The pelvis was dilated and its walls lined completely with soft, friable, papillary tumor tissue. The ureter was dilated, but contained blood and no tumor. The pathologic diagnosis was papillary tumor (nonmalignant) of the pelvis of the kidney, with implantation in the bladder.

CASE 45.[45]—A man, aged 69, complained of painless hematuria of four months' duration. He was well nourished and apparently normal except for slight arteriosclerosis. The left kidney was slightly enlarged and free of tenderness; the prostate was enlarged and bloody urine was frequently voided. The ureter orifices were normal. There was hematuria from the left side. Nephrectomy was performed by Dr. King, and examination of the specimen revealed a papilloma filling the kidney pelvis, which was benign. The patient made an operative recovery.

CASE 46.[46]—A woman, aged 54, in May, 1919, noticed blood in the urine and had severe pain in the left side of the abdomen. When seen, Sept. 26, 1919, she was very emaciated and complained of pain in the right side and radiating down the right thigh. Cystoscopy revealed a normal bladder. The phenolsulphonephthalein test proved function equal on the two sides. A pyelogram revealed the kidney normal, but there was a filling defect of the lower half of the right pelvis, and the two lower calices of the right kidney were entirely missing. Finally, after many cystoscopies a clot was found coming from the right ureter, and the right kidney was removed. When the specimen was opened, a pedunculated tumor the size of the last phalanx of the two thumbs was found growing from the cortical side of the pelvis, the distal end rather macerating and the whole thing filling more than half the pelvis. The pathologic report was that the growth was benign. The patient gained weight and strength and is still in good health.

ABSTRACT OF DISCUSSION

DR. W. F. BRAASCH, Rochester, Minn.: Dr. McCown has quoted Dr. Judd's statistics to the effect that papillary epithelioma of the renal pelvis was found at the Mayo Clinic in only two patients. Since then we have seen three other cases. From a clinical standpoint there are two types; those which have metastases in the bladder and those which do not. It is probable that the majority of cases will have vesical metastases. The diagnosis should, therefore, be made with two things in mind. If cystoscopy reveals a papillary tumor of the bladder, together with a unilateral renal hematuria, the probable diagnosis would be pelvic epithelioma with vesical metastasis. Where there is no tumor of the bladder the diagnosis becomes more difficult. In the majority of cases the diagnosis can be made quite certain by means of pyelography. In the first place, if the growth is large enough, it may occlude the pelvis entirely. Usually, however, there is an irregular, partially obliterated outline of the pelvis, together with dilatation or elongation of one or more calices. It must be remembered that partially organized blood clots in the renal pelvis may cause an outline simulating filling defects. Occasionally, the tumor may be so situated as to cause considerable urinary obstruction with resulting development of a large hydronephrosis. Metastasis in the ureter may also cause hydroureter and hydronephrosis. Papilloma of the renal pelvis will usually cause marked reduction in function of the kidney involved, which can usually be demonstrated by the differential function test. If we employ all of the various clinical data available, we should recognize the majority of these cases. As to treatment, nephro-ureterectomy is usually indicated. There may be no metastases visible in the upper portion of the ureter while the lower portion may be markedly involved and is easily overlooked unless carefully investigated. Complete ureterectomy is advisable in every case. As to the secondary metastases in the bladder, we have observed two recurrences following resection but they have responded well to fulguration. I am under the impression they will usually act about the same as benign papilloma.

DR. C. M. HARPSTER, Toledo, Ohio: We must bear in mind essential hematuria. I have had two specific instances in the last few years. I think it is hard to diagnose papilloma of the pelvis of the kidney. In one instance we used the high frequency current in a case of suspected papilloma of the kidney pelvis and cured the patient. A fine copper wire was passed into a ureteral catheter, which had the end cut off straight, and the catheter was then passed into the kidney pelvis, and the current turned on. Being pleased with our success, we tried it on another patient who was bleeding very severely and it did not do him any good. We injected some collargol into the pelvis of the kidney and the ureter and made a roentgen-ray examination, but did not learn anything from it. The man being nearly exsanguinated, we decided to remove the kidney. We did not find any papilloma, but found three anomalous arteries going to the upper pole of the kidney, which I think had something to do with the bleeding. It is difficult to decide in these cases what should be done. In one case the man was cured by primary fulguration of the kidney. I think we should always bear in mind the possibility of papilloma of the kidney or kidney pelvis in essential hematuria.

DR. WILLIAM E. STEVENS, San Francisco: A man complained of pain in the right lumbar region of one year's duration and hematuria of twenty-four hours' duration. Five years previously a papilloma of the bladder had been removed with snare and cautery. There were no genito-urinary symptoms for a year and a half after the removal of this papilloma. He then suffered from an attack of severe pain in the right kidney region. Following rest in bed this disappeared and the patient left the hospital. Three years later he noticed blood in the urine for a period of one week. Bearing in mind that he had had a papilloma of the bladder five years previously, we thought of a recurrence of this condition but cystoscopy revealed a normal mucosa and blood coming from the right ureteral orifice. The bladder papilloma had been near the left ureteral orifice. Pyelography showed some irregularity and a lateral elongation of the pelvis of the kidney. Operation disclosed a papilloma of the right kidney pelvis which proved to be malignant. It was the size of a walnut. The patient made an uneventful recovery and returned for examination two months ago. Although the upper ureter at the time of nephrectomy showed no evidence of involvement, cystoscopy now revealed a small sessile papilloma surrounding the right ureteral orifice. The advisability of ureterectomy in addition to nephrectomy was demonstrated in this case.

DR. ABRAHAM HYMAN, New York: In a series of forty tumors of the kidney were two tumors of the pelvis, a papilloma and an angioma. The papilloma was unusually interest-

43. Dr. C. H. Mayo's case, given in a footnote in Dr. Judd's report.
44. An unreported case, the history of which was furnished by Dr. F. J. Parmenter.
45. An unreported case, the history of which was furnished by Dr. C. E. Burford.

ing. The patient complained of hematuria. Cystoscopy showed a fairly large papilloma of the bladder near the right ureteral orifice. Specimens removed with the punch forceps were reported benign. The growth was fulgurated three times and disappeared. The hematuria, however, persisted after the disappearance of the growth, and cystoscopy showed that the bleeding came from the right kidney. The patient died in the hospital from an apoplectic stroke. At the necropsy a considerably enlarged right kidney was found, the pelvis of which was filled with a very large papilloma. The tumor of the bladder was an implant from the pelvic tumor. I agree with Dr. Harpster concerning essential hematuria. If more of the cases were subjected to careful examination and operation, undoubtedly some cause for the bleeding would be found in most instances. Dr. McCown, what percentage of pelvic tumors reported in the literature were malignant?

Dr. Herman L. Kretschmer, Chicago: Dr. McCown's review of the literature shows that these cases are very rare. I have seen two cases. One occurred in a man of 48. His bladder was free of tumor. A papillomatous tumor of the renal pelvis was found and a nephrectomy was carried out. The second patient was a young boy who had papillary cystadenoma of the kidney with metastases. Unquestionably, this tumor had its origin in the renal pelvis.

Dr. Albert E. Goldstein, Baltimore: A man about 48 years of age had a large mass in the abdomen on the left side. He had no hematuria and cystoscopically there was nothing abnormal in the bladder. An attempt was made to catheterize the kidney but the catheter would not pass. On account of the size of the mass and the fact that there was no function on this side nephrectomy was decided on. On removing the kidney a papilloma of the pelvis about the size of a large egg was found and the kidney showed cystic degeneration. The cysts were not connected, but were filled with blood. Unfortunately, the patient did not do well on the table and physiologic sodium chlorid solution was ordered. The intern gave this and it must have gone into the lung for a pneumothorax was produced and the patient died the next day.

Fig. 1.—Longitudinal section of a finger tip, 20 microns thick, showing connective tissue sac and blood vessels.

Dr. William E. Lower, Cleveland: I want to emphasize the importance of doing a complete ureterectomy when the kidney is removed. In the case which I reported a few years ago I removed the kidney and the upper part of the ureter which was absolutely free from any growth. A few years later I was forced to remove the whole lower portion which had become studded with growths. If there are any growths in the vicinity of the ureteral orifice it should lead one to suspect the possibility of an extension from growths in the pelvis of the kidney.

Dr. Percy E. McCown, Indianapolis: Concerning the percentage of malignancy, there were eleven cases that showed metastases. The data in a great many case reports secured did not give a description of the microscopic picture but in some of them there was a diagnosis of "papilloma carcinoma." I believe that the term "papillary carcinoma" is probably loosely or incorrectly used in some instances. I do not feel that our own case had become malignant since there was no evidence of a tendency of the tumor to break through the mucous membrane and it had only spread by continuity. My study of these cases makes me feel that they probably have their origin as benign papilloma and degenerate into malignant carcinoma. As in other potentially malignant conditions, early operation is indicated to prevent a metastasis and widespread distribution of the tumor.

Health and Prosperity.—Health is at the root of happiness, of satisfaction in daily toil, of joy in achievement and enterprise and of all national prosperity.—*J. State M.*, July, 1920.

FRACTURE OF THE TIP OF THE DISTAL PHALANX

REPORT OF TWENTY-SEVEN CASES *

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Contusions of the fingers or toes are frequently encountered by the general practitioner and by the industrial surgeon, and the usual expectant treatment of such injuries affords relief in a majority of cases. But it is a matter of common experience that a small percentage of finger bruises do not do well. Pain of a throbbing character continues for days. Swelling of the finger tip and tenderness to pressure become marked, and after a varying period of time paronychia may and often does develop. These severe and protracted cases are not invariably the sequence of severe trauma, but on the contrary often give a history of rather slight injury.

It is my belief that virtually all of the cases with marked symptoms are cases in which the ungual tuberosity of the terminal phalanx is fractured.

Any one who will make roentgenograms of all his cases of contusion of the fingers or toes can readily demonstrate the correctness of the view that "chipping off" of a small fragment of the distal phalanx is not a rare occurrence.

The practice of routine roentgenography in all contusions of the hands and feet shows that, while in virtually all of the clinically severe cases, chip fracture is present, in about 50 per cent. of cases of chip fracture diagnosed by roentgen ray the clinical signs and symptoms are so mild that the bone injury would have been overlooked. This observation was confusing until further study revealed the paradox that compound fractures of this type healed quickly under ordinary aseptic treatment, while in expectantly treated closed fractures there was usually prolonged disability. An explanation of this phenomenon is offered in this paper.

In a recent important article which received editorial comment in the London *Lancet*, Hurley [1] reported a series of twenty-seven cases of this type and related that one of his patients "lost 196 days from work and that seventeen others lost an average of approximately sixty days each." The reason for this prolonged disablement in 66 per cent. of his cases was "persistent tenderness and late infection."

Study of longitudinal sections of a finger tip demonstrates the correctness of Kanavel's [2] statement that the pulp of the distal extremity of the finger lies in a closed, trabeculated connective tissue sac (Fig. 1).

Transverse sections show that this closed space in the tip of the finger is bounded by connective tissue

* Owing to lack of space, this article has been abbreviated by the omission of a tabulation of cases. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

1. Hurley, W. R.: Chip Fractures of Terminal Phalanges, J. Indust. Hyg. 1: 85-89 (June) 1919.
2. Kanavel, A. B.: Infections of the Hand, Philadelphia, Lea & Febiger, 1914, pp. 26-28.

that is least dense at the lateral borders of the ungual extremity of the bone. For this reason extravasated blood in the closed space often escapes to the nail bed and may even give rise to subungual hematoma. The

Fig. 2 (Case 18).—Appearance after three days of conservative treatment.

vessels run parallel with the bone, one lying on each side within the enclosure; and study of an injected specimen shows that while the blood supply is excellent in the normal case, the tension of edema or extravasated blood within this closed sac might shut off the blood supply to the diaphysis, where the nutrient foramina always open on the palmar surface of the bone. The epiphysis is not involved, because it receives its blood supply in a region protected by the flexor profundus tendon before the digital arteries enter the closed sac. A result of this peculiar anatomic structure is often seen in cases of felon which have not come under early treatment. On incision, the entire diaphysis often is found to have become a sequestrum.

PATHOLOGY

When fracture of the ungual tuberosity occurs, the periosteum, which it is virtually impossible to dissect up from the bone in this region, is torn, and there is bleeding into the surrounding encapsulated adipose tissue. Figure 2 is a photograph of a conservatively treated case of ungual tuberosity fracture of three days' standing, and shows the typical appearance of this injury.

The extravasated blood impairs the blood supply of the diaphysis, and may tend to keep separated the fragments of the broken bone. The digital arteries are not occluded by the pressure, for they can be felt pulsating in these cases, as they often can be in unopened bone felons with complete necrosis of the diaphysis.

The veins, however, are affected by the combination of traumatic edema and extravasated blood, and return circulation is greatly impeded.

DIAGNOSIS

The pressure pain that almost uniformly occurs in cases of closed "chip fracture" of the terminal phalanx is similar to the pain of a felon (as might be expected), but is less severe in most cases because products of infection are not held under tension. Swelling due to edema and hemorrhage is generally present, and subungual accumulations of blood are the rule if sufficient time has elapsed.

Even in cases seen a few minutes after injury I have never been able to elicit crepitus or to palpate the detached fragment, and tests for localized skin tenderness with the tip of a silver probe have not yielded satisfactory results.

The roentgen ray is the only positive means of early diagnosis that we have at the present time.

TREATMENT

The results of prompt surgical intervention in a series of twenty-seven consecutive and unselected cases have been uniformly excellent. All the cases occurred in adult male factory workers, and an average of only 6.3 days apiece was lost from work. No man was incapacitated for more than thirty-five days.

As soon as the diagnosis can be established, an incision should be made into the closed connective tissue sac. If the pressure is relieved promptly and without procrastination, its sequelae—pain and delayed sepsis—will not supervene.

The site and method of incision vary with the indications of each case. Should there be free blood under the nail (as is frequently the case) it can sometimes be evacuated by inserting the tips of sharp pointed scissors between the free edge of the nail and the nail bed, and by slightly opening the blades after the points have penetrated about one-eighth inch. This method has the objection that the tissues are opened through a field that can be only imperfectly sterilized, even though the free edge of the nail is clipped close. The

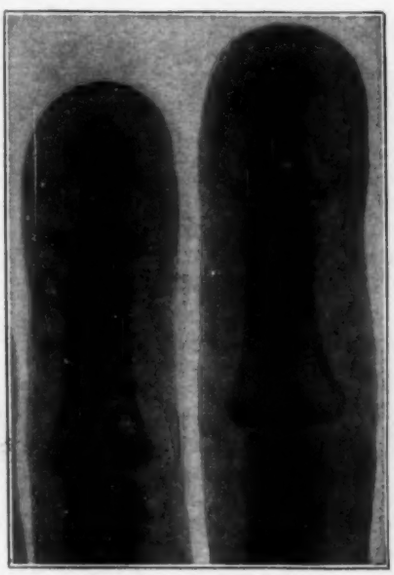

Fig. 3 (Case 18). — Fragmentation of ungual tuberosity.

Fig. 4 (Case 13).—The lesion commonly found in these cases.

hyponychium itself is peculiarly resistant to bacterial infection,[3] but the nail bed is not.

The more radical method of making two short longitudinal incisions through the eponychium and resecting a transverse strip of the nail where it is thin and soft is sometimes indicated when the hematoma is principally at the lunula.

If no extravasation is seen beneath the nail, a one-fourth inch incision may be made with a small, sharp scalpel or a Graefe cataract knife into the lateral aspect of the finger tip deep enough to open the connective tissue sac. An effort should be made to place this incision so that the digital arteries and the digital nerves will not be severed.

These minor operations can be performed painlessly under local anesthesia. Rigid surgical asepsis should be practiced after carefully clipping short the free edge of the nail, cleansing the skin with ether and painting the entire finger with 5 per cent. picric acid in alcohol (or with iodin, if preferred).

Some oozing is sure to occur and is to be desired. To avoid possible infection with skin saprophytes, the dressing may if desired be antiseptic (rather than merely aseptic) for the first forty-eight hours at least.

CONCLUSIONS

1. Fracture of the tip of the distal phalanx is not a trivial injury.
2. Early recourse to surgery, rather than expectant treatment, is indicated.
3. The results of prompt surgical treatment in a series of twenty-seven censecutive and unselected cases have been uniformly excellent.

1066 Lincoln Place.

REMOVAL OF THE ASTRAGALUS IN PARALYTIC FEET

RESULTS IN TWO HUNDRED AND SEVENTEEN CASES *

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In this paper I shall present the end-results of a fairly large number of cases of infantile paralysis in which the astragalus was removed for a paralytic condition of the foot, resulting in lateral instability and various other deformities which will be properly classified.

It has always seemed to me wise and of distinct value to present end-results from clinics or individual operators, regardless of the nature of the results. New procedures often lead to a stampede of operating by the advocated method, without knowledge of end-results, and even old methods are often perpetuated indefinitely, until one takes the trouble to see the end-results of such procedures, two, three or five years later. There is then generally a sad awakening; for however brilliant the operation or the operator may be, time and growth, especially in children, lead to anything but the expected result, though it may have seemed perfect six months after the operation. This is especially true in orthopedic cases.

It is my purpose here not to condemn the operation known generally as "Whitman's operation," or astragalectomy, but to offer a word of caution graphically expressed in figures and end-results, to warn the optimistic operator and to strengthen the hand of the conservative. Whitman first described the operation in 1901, and advocated it primarily for cases of calcaneovalgus. Since then the field has been broadened, and it is now used by him and others in many other types of paralytic distortions of the feet. He stated recently [1] that in sixty operations in which the astragalus was removed, only sixteen were for calcaneous deformity.

Fig. 1.—Postoperative condition of foot; foot not displaced far enough back on leg; compare with Figure 2.

The main object of the operation is to restore the symmetry and stability of the foot following paralytic distortions or relaxations. This report covers 195 cases. The operation has been performed on 217 feet in these cases by eight different surgeons, on feet varying from those completely paralyzed to those in which only one muscle was weak or gone. The object in all cases was, as stated above, to restore either symmetry or stability. This, I believe, it has failed to do in many cases.

The position of the foot before operation, that is, the existent deformity, as a result of the paralysis, is given in Table 1.

It will be noted that the operation has been performed for all types of deformity, and that the flail foot and the foot in the calcaneovalgus position are only about 25 per cent. of the total recorded deformities.

It seemed a matter of interest and importance for any adequate study to determine the muscle power existing in these feet before operation. This was done for all groups, with the results given in Table 2.

Fig. 2.—Condition of bone in foot illustrated in Figure 1.

Under the classification good to fair are those feet in which muscles were: (*a*) normal; (*b*) good: when the muscle was strong enough to overcome gravity and some resistance, but was not quite of normal strength.;

3. Jones, F. W.: The Principles of Anatomy as Seen in the Hand, Philadelphia, P. Blakiston's Son & Co., 1920, p. 47.

* From the Orthopedic Clinic, Children's Hospital.

1. Whitman: M. Rec., July 24, 1915.

(*c*) fair: when the muscle was able to overcome gravity and could perform part of the normal movement; (*d*) poor: when slight movement could be

Fig. 3.—Type of deformity, before operation.

accomplished but gravity could not be overcome, and (*e*) gone: totally paralyzed; no perceptible contraction.

A study of this table shows that the average percentage of good muscles, that is, muscles able to function well in weight-bearing, is 33.2 per cent. This brings us to the question of how one should formulate a standard by which one could determine the proper

TABLE 1.—POSITION OF FOOT BEFORE OPERATION

Equinovarus	48	Calcaneocavus	10
Equinovalgus	25	Flail	15
Equinus	18		188
Varus	11		
Valgus	19	No note	29
Calcaneovalgus	31		
Calcaneus	5	Total	217
Calcaneovarus	6		

Boys, 124 (representing 135 feet operated on).
Average age of boys, 8 years; oldest 12, youngest 2¼ years.
Girls, 73 (representing 80 feet operated on).
Average age of girls, 8.5 years; oldest 13, youngest 3.5 years.

muscular conditions of a foot, in relation to the advisability or necessity of this operation.

As will be noted, all muscle groups average about alike, with the exception of the anterior tibial of 18.6 per cent. and the toe flexors of 52.5 per cent. The latter group represent to my mind the most important factor in the bad results I have seen. The persistence of power in the toe flexor group, with the weakness or complete loss of power in the other groups, especially the toe extensors, and the peroneals, leads in many cases to a postoperative varus, associated with an equinus of a greater degree than was planned for at the time of operation. This deformity is liable to increase, and results in a foot which is no better than before operation and in many cases worse. In the analysis of a large series of cases by Lovett, it has been shown that of all the foot muscles, the toe flexors are the least often involved and the least often totally paralyzed. The posterior tibial has played very little part in this deformity, for in connection with the anterior tibial, it has been the most frequently paralyzed, or affected to the point at which it could not function effectually. Even adequate backward displacement of the foot may lead to later troublesome varus with per-

TABLE 2.—MUSCLE ANALYSIS PREVIOUS TO OPERATION

	Good to Fair	Poor to Gone	Total	Good Per Cent.
Gastrocnemius (including trace)	69	123	192	35.9
Anterior tibial	36	157	193	18.6
Posterior tibial	40	150	190	21
Peroneals	63	127	190	33⅓
Common extensors; extensor longus digitorum	67	121	188	35
Extensor longus hallucis	69	120	189	36
Toe flexors	92	83	175	52.5

Average percentage of good muscles, 33.2.

sistent toe flexors. I believe that it would be better to divide them at the time of operation, for they act in the same way as they do in a congenital club-foot, and tend constantly to increase the varus and equinus deformity.

A foot, which, even if unstable at the ankle, allows weight bearing with the sole flat on the ground is to my mind, other things being equal, better than a foot with a more or less stiff ankle, with the fore foot in equinovarus, and weight bearing restricted to the ball of the foot or its outer border.

The operation has not differed materially in technic, except for such variations in procedure as individual operators chose to use. The astragalus has been

Fig. 4.—Good postoperative result.

removed by some as a whole, and by others in two pieces. This makes no difference, so long as it is all removed. It has been customary also to fit the articular surfaces of the malleoli into grooves on the sides of the cuboid and scaphoid, respectively. In a number of cases, after sliding the foot back, a stitch is taken to hold the foot in that position, this stitch pass-

ing through the cuboid or its periosteum, and through the end of the fibula. Care must be observed in placing this stitch that the foot is not carried too much into

Fig. 5.—Good postoperative position.

valgus. In a certain number of the cases, transplantation of tendons has been made, namely, the peroneals have been carried forward and inserted into the middorsum of the foot. In others, the peroneals have been divided and inserted into the os calcis after Whitman's method. So far as our results go, I have seen no especial reason why they were disturbed at all. Further, if the operation was devised to correct a hollow foot, in this series it has many times failed to do so, as will be noted later.

In regard to the increased shortening of the leg as a result of the removal of the astragalus, I believe that this factor can be dismissed as an objection more theoretical than practical. Accurate measurements to determine this condition of increased shortening have been impossible in this series.

GENERAL CONSIDERATION

Leaving out of consideration for a few minutes the statistical study of these cases, I wish to discuss the general question of when or when not an astragalectomy should be performed in any given case of infantile paralysis.

Originally devised as a practical operation for a calcaneovalgus deformity to insure stability, the operation has of late years been used more and more to insure lateral stability of the foot for all paralytic conditions. This is all right perhaps so far as the foot goes, but there are other considerations to be taken into account in walking and weight bearing besides the foot alone. Rarely does one see in a given case, supposedly in need of an astragalectomy, the foot and lower leg alone affected. Many times the trunk, abdominal, gluteal and thigh muscles are paralyzed in a greater or less degree, all of course affecting the gait and function. Many times the foot and ankle are the least offending factors, and not at all the principal elements in the lack of ability to walk well.

An astragalectomy for a simple varus or valgus represented by moderate lateral instability is to my mind not indicated. The indication is quite in the other direction in a flail foot, or a foot with only one muscle group left, in which there is persistent deformity in weight bearing, and inability to get the sole of the foot to the ground in weight bearing. Also, with a complete flail leg and foot, the question is not at all clear that an increased shortening as a result of the removal of the astragalus, and a stiff ankle, are going to make very much actual difference in function, as a brace will always have to be worn.

On the basis of a limp alone, the major part of the limp may not be due to the foot condition at all, as may be noted in the study of any series of cases, but may be due to weakness of any of the leg, hip or abdominal muscles. As a matter of fact, following astragalectomies, in my experience, the limp is practically no better, except in the case of those patients who had such good muscle power before operation that to my mind the operation should never have been performed, and where the ankle motion is nearly as good as that seen in a normal foot. Loss of ankle motion as expressed in an inability to plantar flex, either due to paralysis of the gastrocnemius, or as a result of an operative procedure, gives the same end-result so far as a limp goes.

RESULTS OF THESE OPERATIVE CASES

The average length of time of examination after operation was two and one-half years, the longest time was eight and ten-twelfths years, and the shortest four months. I have seen a large number of these cases,

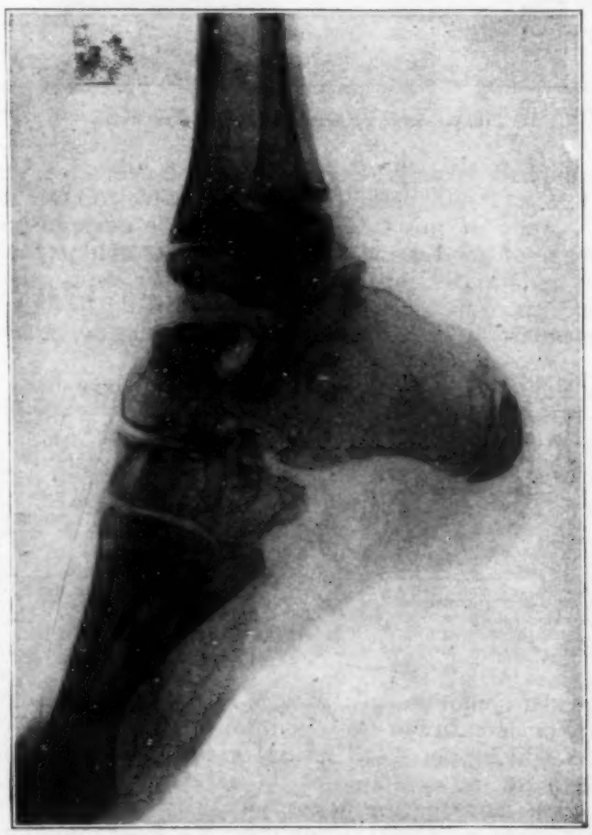

Fig. 6.—Poor postoperative position.

and the results of the others have been taken from the hospital records.

Table 3 shows the results after operations, so far as the position of the foot is concerned.

A comparison of the preoperative with the postoperative deformity gives the results presented in Table 4.

This comparison with the preoperative deformity is not an encouraging one, in spite of the fact that the equinus position is supposed to be the one sought for by the operator. Combined with slight valgus it is not, to my mind, a satisfactory one for adequate weight bearing. So far as could be determined, equinus or equinovarus were the predominating postoperative deformities or positions, the equinus, of course, being due to the deliberate attempt to place the foot in that position, and the varus being a deformity as the result either of lack of adequate correction at the time of operation or, secondarily, as a result of growth and persistent toe flexors.

An analysis of the individual deformities before operation and after operation shows that any type of variation is possible, and that no preoperative condition so far as the deformity goes can determine what the postoperative one is likely to be.

One might be led to remark here we do not know how to perform the operation or how to carry out the after-treatment; but until we can be shown comparable figures and results, we can well rest content, not, however, condemning the operation or its technic, but limiting it to suitable and selected cases at a suitable age when danger of distortion from growth has largely ceased to operate.

The results of the operation in 130 cases are given in Table 5.

Three poor results required a second operation.

Beside the three cases listed as "not better functionally, no other note," three other cases were not better functionally. Of these, the foot result was good in two cases and excellent in the third.

In all, twenty-four cases were listed as "functionally better." Of these, six were classified fair, four as good, one as excellent, and thirteen had no other note.

The functional result is what counts, not the surgical result, and one must not be led astray by the fact that the foot looks better, and that there may be less lateral instability at the ankle, as a result of the operation. The questions to be answered are: Can the child walk and stand better, is there less limp, and do the parents think the child is improved? To be sure, all parents expect miracles as the result of an operation, and many I know expect perfect restoration to health and function; but surgeons should be on their guard in interpreting results 1,920 years after miracles have gone out of fashion.

TABLE 3.—POSITION OF FOOT AFTER OPERATION
(COMPARE WITH TABLE 1)

No Note	120	Calcaneocavus	3
Equinovarus	33	Calcaneovalgus	4
Equinus	20	Calcaneovarus	0
Varus	14	Perfect	1
Equinovalgus	9		
Valgus	7		217
Calcaneus	6		

TABLE 4.—COMPARISON OF PREOPERATIVE AND POSTOPERATIVE DEFORMITY

Before Operation	*After Operation*
9 flail feet	4 equinus 3 equinovarus 1 valgus 1 calcaneus
4 feet with toe flexors only power	3 equinovarus 1 equinus
3 equinus	3 varus
18 equinovarus	8 equinovarus 4 varus 4 equinus 2 equinovalgus
13 equinovalgus	4 equinovarus 4 equinus 2 varus 2 calcaneovalgus 1 calcaneovarus
3 calcaneovarus	1 equinovarus 1 varus 1 calcaneovalgus
16 calcaneovalgus	5 calcaneus 1 calcaneovarus 3 equinovarus 2 equinovalgus 2 calcaneovalgus 1 varus 1 valgus 1 perfect foot
4 calcaneus	3 valgus 1 equinovalgus
6 varus	3 equinovarus 2 varus 1 equinus
4 valgus	2 equinovalgus 1 equinus 1 equinovarus
Foot displaced back	enough, 39 not enough, 15 no note, 163

TABLE 5.—GENERAL CLASSIFICATION OF RESULTS

Excellent	17	Considerable	25
Good	60	No note	118
Fair	24		217
Poor	13		
Functionally better; no other note	13	Stable	104
		Not stable	7
Functionally not better; no other note	3	Doubtful	6
No note	87	No note	100
	217		217
JOINT MOTION		Good inversion	9
Ankle joint:		Some lateral motion	24
No motion	18	Slight lateral stability	113, 165
Very little	36	Fair stability	174
Some	20	Good lateral movements	180

CONCLUSION

As a result of this analysis of these cases, I feel that an astragalectomy is not an operation to be advised for any foot showing lateral instability as a result of the paralysis of one muscle group alone. The lateral instability at the ankle may be averted, but more subsequent deformity may develop. It is as good an operation as any in feet which are flail, or those which have only one muscle group left. In the presence of toe flexors, varus is likely to develop later and lead to a bad weight-bearing position.

The best results I have seen are in those feet in which there was good muscle power before operation, and where after operation there was good motion between the tibia and os calcis, and good weight-bearing positions of the foot. In the latter cases, I believe it should never have been performed. It is not an operation that will cure a limp, or even improve one as a rule.

It is not an operation to be advised lightly or invariably for foot deformities, but should be performed on older children in selected cases.

286 Marlborough Street.

PHENOL AND INDICAN EXCRETION IN A CASE OF TETANY OF INTESTINAL ORIGIN *

GEORGE ERIC SIMPSON, PH.D.
MONTREAL, CANADA

During the course of an investigation on the excretion of phenols and indican by normal persons, reported elsewhere,[1] an opportunity was afforded to study a case of tetany of intestinal origin.

The indican excretion of this patient on admission to the hospital was extremely high. The phenol excretion was not greater than is frequently encountered in the normal person. The patient's diet had included an unregulated amount of protein. When the patient was placed on a low protein diet, containing much carbohydrate, as cereals and milk, urinary indican disappeared within three days. When, after this low level of indican excretion was established, meat was fed for a day or two, indican excretion increased enormously, while phenol excretion showed an increase for a day. When the cereal diet was again given, with a reduced quantity of milk, the indican gradually disappeared from the urine. During the period of diet regulation the tetanic spasms decreased in severity and finally disappeared. In other respects the condition of the patient was unimproved.

REPORT OF CASE

A. B., an Italian housewife, was admitted to the hospital, April 25, 1919, in an extremely emaciated condition and suffering from severe attacks of painless cramps in the arms and legs. The elbows were flexed, and the hands and fingers in the position of tetany. A diagnosis of duodenal adhesions, with tetany, was made.

The general plan of the experiment was the same as that previously described.[1] Careful account was taken of the amount and character of the food actually consumed. The chemical analyses were made in duplicate, using the analytic method previously described. Urinalyses were made, May 15, 16 and 17, and daily from June 5 to July 17.

The home diet had consisted of meat, fish, macaroni, eggs, milk, cheese, beans, peas, tomatoes, spinach, lettuce, other vegetables, and wine. The cereal and milk diet consisted largely of bread, macaroni, noodles and milk. Between 50 and 100 gm. of total lactose was consumed daily, either in the milk or on the cereal. This diet caused an immediate marked reduction of indican excretion, with entire disappearance in two days.

When meat was fed, indican reappeared, but again was caused to disappear when the high cereal diet was again given. It took a longer time for the indican to disappear this time. During this period the amount of milk was limited on account of the patient's extreme distaste for this food. The amount of total lactose daily consumed was from 25 to 50 gm.

The large amount of indican is especially significant in that the patient was suffering from diarrhea at all times. The feces were always liquid in consistency, fatty, light colored, and very putrid. The patient's weight on admission was 64 pounds. This continued to decrease until, when she died, shortly after leaving the hospital, she weighed only 48 pounds. It was not possible to obtain permission for a necropsy.

PHENOL AND INDICAN EXCRETION IN TETANY OF INTESTINAL ORIGIN

Comment	Date	Volume, C.c.	Total Nitrogen, Gm.	Creatinin, Gm.	Indican, Mg. Indigo	Phenols				
						Total, Mg.	Free, Mg.	Conj., Mg.	Free, per Cent.	Conj., per Cent.
Before admittance										
diet contained	May 15	1,100	...	0.49	152	458	181	277	39	61
much protein	May 16	910	...	0.37	99	350	160	190	46	54
	May 17	1,005	...	0.37	120	405	184	220	45	55
Cereal and milk										
	June 20	1,390	4.0	0.34	10	363	178	185	49	51
	June 21	1,448	4.2	0.36	20	534	352	182	66	34
	June 22	1,215	3.8	0.32	None	366	254	112	69	31
	June 26	1,155	...	0.32	None	389	206	183	53	47
	June 28	1,325	4.0	0.28	None	298	207	91	70	30
	June 29	1,140	3.6	0.23	None	326	223	103	68	32
Meat										
	June 30	995	4.0	0.25	65	447	244	203	55	45
	July 1	1,005	4.2	0.30	34	323	196	126	61	39
	July 2	1,250	4.9	0.28	42	274	211	63	77	23
Cereal since July 3										
	July 12	750	4.3	0.26	7	216	120	96	56	44
	July 13	745	4.0	0.26	1	205	119	86	58	42
	July 14	1,082	3.7	0.25	None	211	108	103	51	49

* From the Department of Experimental Medicine, Yale University School of Medicine.

* The experimental data embodied in this paper are taken from the dissertation submitted by George Eric Simpson for the degree of Doctor of Philosophy, Yale University, 1920.

1. Underhill, F. P., and Simpson, G. E.: The effect of Diet on the Excretion of Indican and the Phenols, J. Biol. Chem., to be published.

THE BLOOD ALKALI RESERVE WITH EXPERIMENTAL INFECTIONS

PRELIMINARY REPORT *

EDWIN F. HIRSCH, M.D.
CHICAGO

Variations in the alkali reserve of the blood have been noted in different diseases, and a diminution below the normal level is regarded as evidence of acidosis. Some of the results obtained in studying the alkali reserve of the blood in animals with experimental infections are sufficiently striking to merit mentioning in a preliminary report. Rabbits were used in these experiments, and the alkali reserve of the whole blood was measured by determining its carbon dioxid combining power equilibrated with air containing 5.5 per cent. carbon dioxid, according to the Van Slyke and Cullen [1] method, the readings being properly corrected for 0 C. and 760 mm. barometric pressure.

The injection of each bacterial suspension is followed within four hours by a rapid and frequently marked lowering of the leukocytes of the blood (negative phase), coincident with which is a rapid diminution of the carbon dioxid combining power of the blood. Following the leukopenia and lowered alkali reserve, the leukocytes increase in number, and the carbon dioxid binding power of the blood returns to its normal

* From the Pathology Laboratory of St. Luke's Hospital.

1. Van Slyke, D. D., and Cullen, G. E.: Studies of Acidosis, I, J. Biol. Chem. **30**: 289-346 (June) 1917.

level, or even exceeds that determined for the animal before the injection of the bacteria, and then gradually approaches its normal value. This entire reaction occurs usually within twenty-four hours after the bacterial injection.

During the period of lowered alkali reserve and leukopenia, there is a more or less marked prostration of the animal, which disappears slowly with the increase of the leukocytes and the alkali reserve. In experiments in which the injection of a bacterial suspension fails to change appreciably the leukocyte content of the blood, there is also a slight or moderate diminution of the blood alkali reserve; but here also the reaction curves are similar to those of animals in which the number of leukocytes in the blood is changed greatly.

CONCLUSION

The blood alkali reserve of animals injected with bacteria is lowered coincidently with the initial leukopenia, and during the subsequent increase of the leukocytes rises to or exceeds the level determined originally for the animal. These changes occur within relatively short timed intervals. Graphs of these reactions resemble in contour those generally known for immune body production.

BENZYL ALCOHOL FOR TOOTHACHE*

DAVID I. MACHT, M.D.
BALTIMORE

In 1918, I[1] announced my discovery of the local anesthetic properties of benzyl alcohol, or phenmethylol, and published both pharmacologic and clinical data on the subject. I found that solutions of that drug in concentrations of from 1 to 4 per cent. by volume, in physiologic sodium chlorid solution or in distilled water, furnished a satisfactory local anesthetic for general surgical work, on the one hand, and that benzyl alcohol was at least forty times less toxic than cocain, on the other. It was found that solutions of phenmethylol produced efficient anesthesia, especially when infiltrated in the tissues, either alone or, still better, combined with small doses of epinephrin. On application to mucous membranes, solutions of benzyl alcohol produce also a distinct anesthetic effect, but the anesthesia is very superficial and does not penetrate into the deeper layers of the tissues. It was found that a much better anesthesia of mucous or skin surfaces could be produced by application of pure benzyl alcohol. Pure benzyl alcohol cannot be injected into living tissue for the same reason that pure ethyl alcohol cannot be administered in that way: it leads to local necrosis. When applied to mucous surfaces, however, the drug is not irritating and produces a marked anesthetic effect.

I undertook experiments with a view of enhancing the penetrating power of benzyl alcohol when applied to mucous or skin surfaces. It was found that when the drug was mixed with certain lipoid solvents, the local anesthesia after its application extended more deeply below the surface. Among the most satisfactory of such solvents were found to be xylene and chloroform, especially the latter.

In the present note I wish to call the attention of the general practitioner to a very satisfactory minor use of benzyl alcohol. I have found, as have others, that benzyl alcohol either alone (100 per cent.), or, still better, when mixed with an equal part by volume of chloroform, furnishes a most efficient anodyne for toothache, when introduced on a pledget of cotton into a tooth cavity, or applied to an exposed nerve. The relief obtained by the use of such drops is marked and almost instantaneous, and is also long-lasting. I am not aware of any other drug, with the exception of cocain, which is more efficient in relieving toothache. As benzyl alcohol is the least toxic of all the well-known local anesthetics, the repeated and free use of such a combination as was described above is free from the objections which are raised by the employment of cocain, and it can be administered with impunity even to small children. It is for this reason that it was deemed worth while to publish this note in order to advise the medical practitioner of a simple remedy for the relief of one of the most excruciating forms of pain.

* From the Pharmacological Laboratory of the Johns Hopkins University.

1. Macht, D. I.: J. Pharmacol. & Exper. Therap. **11**: 263 (April) 1918.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CAPSULES FOLIA-DIGITALIS (UPSHER SMITH) AND TINCTURE OF DIGITALIS (UPSHER SMITH)

Report of the Council on Pharmacy and Chemistry

Capsules Folia-Digitalis (Upsher Smith) and Tincture of Digitalis (Upsher Smith), advertised and sold by Upsher Smith, St. Paul, Minn., were submitted to the Council. The Council finds that these preparations have the status of official articles and are, therefore, not within the scope of New and Nonofficial Remedies.

ACRIFLAVINE (See New and Nonofficial Remedies, 1920, p. 20).

Acriflavine-Abbott.—A brand of acriflavine complying with the N. N. R. standards.

Manufactured by The Abbott Laboratories, Chicago, under U. S. Patent No. 1,005,176 (Oct. 10, 1911; expires 1928), by license of The Chemical Foundation, Inc.

PROFLAVINE (See New and Nonofficial Remedies, 1920, p. 21).

Proflavine-Abbott.—A brand of proflavine complying with the N. N. R. standards.

Manufactured by The Abbott Laboratories, Chicago, under U. S. Patent No. 1,005,176 (Oct. 10, 1911; expires 1928), by license of The Chemical Foundation, Inc.

BETANAPHTHYL BENZOATE (See New and Nonofficial Remedies, 1920, p. 189).

Betanaphthol Benzoate-Seydel.—A brand of betanaphthyl benzoate complying with the N. N. R. standards.

Manufactured by The Seydel Manufacturing Co., Jersey City, N. J.

BENZYL ALCOHOL (See New and Nonofficial Remedies, 1920, p. 27).

Benzyl Alcohol-Seydel.—A brand of benzyl alcohol complying with the N. N. R. standards.

Manufactured by The Seydel Manufacturing Co., Jersey City, N. J.

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SATURDAY, OCTOBER 30, 1920

GLANDULAR ORGANS AS ARTICLES OF DIET

The fear of uric acid has long exercised a dominating influence in the formulation of rules for diet. It has become quite customary to proscribe those foods which contain precursors of uric acid in relative abundance. For the most part this includes products of animal origin, namely, meats and more particularly glandular tissues abounding in cells and therefore comparatively rich in nucleoproteins. In man the purins occurring free in tissues like the muscles, or derived from the nucleic acids of other cellular structures, are converted into uric acid as an end-product of metabolism. Ordinarily this catabolite is readily excreted and is free from the charge of harmful influences on the organism that has produced it. There are conditions, however, in which the renal threshold for uric acid is raised by disease so that it cannot be properly eliminated. The phenomenon is manifested in certain types of nephritis. Under such circumstances, harm may arise. In gout also the level of uric acid in the circulating blood is higher than usual. Whether the causal factor is renal or local in certain tissues is not clearly determined. At any rate, it is generally agreed that purin metabolism itself is not essentially at fault in gout, though the end-product may fail of excretion or may be deposited in undesired places. Numerous ills, particularly nondescript "rheumatic" disorders, are no longer attributable to "uric acid poisoning," as they were likely to be explained only a few years ago. More exact analysis of such cases has failed to justify the unfounded claims; while other causes, notably local infections and other bacteriologic agencies, have been found more likely as etiologic factors.

Although all flesh foods—fish, shell-fish, meats and fowl—have been subjected to criticism because they harbor a small amount of purins which lead to the production of uric acid, this objection has been particularly emphasized in the case of glandular representatives such as sweetbreads, liver and kidney, all of which are popular articles of diet with large numbers of persons. Indeed, they are regarded in many quarters as dietary delicacies. There is no doubt that when these foods are consumed in great abundance, the production of uric acid and other acids in the body is decidedly augmented. The possibility of producing calculi and deposits cannot be excluded, although most persons are never aware of these eventualities. However, if faulty excretion may occur despite normal metabolism, the necessity of dietary regulation to avoid harm must still be kept in mind. Perhaps it is for this reason that one may still read the statement that "among the worst foods are . . . sweatbreads, liver, kidneys, 'high' game or poultry."[1]

Recent investigations have made it seem questionable whether this severe incrimination is entirely deserved as judged by the newer knowledge of nutrition. Liver tissue has been found to be singularly rich in the known types of vitamins. Futhermore, its protein, biologically speaking, is of good quality. Osborne and Mendel[2] have found that animals would grow with vigor on diets in which liver furnished the sole source of water-soluble (B) and fat-soluble (A) vitamins as well as protein. In the treatment of diseases of the eye at present associated with deficiency in fat-soluble vitamin in the diet, liver consumed as an adjuvant has been regarded as remedial. This is true in the treatment of the night blindness encountered in Japan and India, where the free use of liver as food is said to be a popular remedy. We are told that in Japan, eel fat and chicken livers enjoy the reputation of being efficacious in the cure of xerophthalmia.

The peculiar dietary significance of liver and related products has lately been indicated by McCollum.[3] Reviewing his own experiments on animals, he states that it is possible to select carnivorous foods so as to secure a fairly satisfactory diet entirely derived from animal tissues. Young animals cannot grow or long remain in health when restricted to muscle tissue as their sole food. When blood, liver, kidney and other glandular tissues are selected, together with a certain amount of bone substance, he states, the food supply is sufficiently good to lead to normal development. Muscle tissue must be liberally supplemented with glandular organs to make possible success with the strictly carnivorous diet. It need not be denied that one may overeat in respect to glandular tissues, and that the result may be unwholesome. Overindulgence in potato also is not always well tolerated; and "cereal gout" is not unknown. But assuming moderation of diet on the part of healthy man in a regimen in which liver and its analogues are consumed as adjuvants rather than fundamentals in the ration, it is likely that they may often exercise a wholesome and even corrective influence in supplying food factors which the cereals, roots, tubers and even muscle tissue lack. Custom and the dietary preferences of multitudes evidently tally with this seemingly significant discovery.

1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1919, p. 55.
2. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **32**: 309 (Dec.) 1917.
3. McCollum, E. V.: Newer Aspects of Nutrition, Proc. Inst. Med. Chicago **3**: 13, 1920.

THE NUTRITIVE VALUE OF NUTS

The food chemist accustomed to deal with edible products in terms of quantity and proportions—in calories and grams of protein, fat and carbohydrate—has long given to the various nuts a prominent place among concentrated foods. From his analytic standpoint they may even surpass such recognizedly valuable foods as meats, eggs and cereals in their concentration of nutrients. Although nuts and products made from them have been used by man the world over as adjuvants to his usual diet, they have only lately obtained a larger recognition in relation to the dietary. The failure to eat nuts more extensively is doubtless due in part, as Cajori [1] pointed out some time ago, to their reputation for indigestibility, and to the discomfort that may occur after eating them at the close of a heavy meal.

Scientific studies have not justified the reputation for the indigestibility of nuts that has become somewhat traditional. Experiments that were conducted by Cajori [1] at Yale emphasized anew what has long been contended by Jaffa [2] of California, namely, that nuts are valuable foods, judged by their behavior in digestion and metabolism. They point out that if nuts are eaten properly and used in the diet as eggs, meat and other foods rich in protein are eaten, they behave quite as well in the body as do the ordinary staple articles of food. Particularly when nuts are finely comminuted by proper mastication, or are consumed in the finely divided form of nut pastes or nut "butters," there can be no complaint about the proper utilization of the product. The question of texture, of the avoidance of hard, impermeable particles of any food substance concerns the culinary or physiologic manipulation of the material rather than its chemical make-up. In other words, it can usually be corrected by proper preparatory procedures; one need merely contrast raw almonds with almond "milk" by way of illustration.

But the nuts have something more than mere digestibility to recommend them. Their protein is, in general, of a superior quality. The production of good growth is a test for biologic "completeness" of a protein. In experiments just conducted at Yale University, Cajori [3] has secured very satisfactory growth over long periods in animals on diets in which the almond, English walnut, filbert and pine nut, respectively, furnished the essential source of protein in the ration. These proteins afford the necessary nitrogenous complexes for the elaboration of milk in the same species. From a study of the relations of diet to milk production in women, Hoobler [4] pointed out, not long ago, that as a rule animal proteins are more efficient than vegetable proteins for the elaboration of human milk. However, nut proteins were an exception to this generalization in that diets containing almonds, English walnuts, pecans and peanut butter as a source of protein proved to be as suitable for milk production as diets that furnished protein from animal sources.

This is not the limit of commendation. Nowadays adequate nutrition is also discussed with reference to vitamins in the diet, since these dietary essentials apparently cannot be synthesized by the animal organism. According to Cajori,[3] normal growth can be secured when rats are fed on otherwise adequate diet containing the almond, English walnut, black walnut, Brazil nut, chestnut or pecan as the sole source of water-soluble vitamin. Animals that have declined on a diet devoid of water-soluble vitamin promptly recover when the almond, English walnut, filbert, hickory, pine nut, chestnut or pecan is introduced in the diet. These observations indicate that nuts are sources of abundant quantities of water-soluble (B) vitamin. Evidence of the sort here reviewed need not be assumed to justify propaganda for any exclusive system of diet. We do not argue for a race of nutarians or vegetarians or any other fad of the extremists. The latest information as to the nutritive virtues of commonly used nuts can only be welcomed, particularly by those who, like diabetics, rely on these food products, most of which are poor in digestible carbohydrates but rich in proteins and fats, to enlarge the variety of a limited regimen. Furthermore, the nuts are logical dietary supplements to many foods, like the cereals, roots, tubers and fruits. There's a reason, as we now have learned.

1. Cajori, F. A.: The Utilization of Some Nuts as Food, J. Home Econom. **10**: 304 (July) 1918.
2. Jaffa, M. E.: Nutritional Investigations Among Fruitarians and Chinese, Bull. 107, U. S. Dept. Agric., Off. Exper. Stations, 1901; Farther Investigations Among Fruitarians, Bull. 132, 1903.
3. Cajori, F. A.: Some Nutritive Properties of Nuts; Their Proteins and Content of Water-Soluble Vitamine, J. Biol. Chem. **43**: 583 (Sept.) 1920.
4. Hoobler, B. R.: Problems Connected with the Collection and Production of Human Milk, J. A. M. A. **69**: 421 (Aug. 11) 1917; The Effect on Human Milk Production of Diets Containing Various Forms and Quantities of Proteins, Am. J. Dis. Child. **14**: 105 (Aug.) 1917.

THE PHYSICIAN'S RESPONSIBILITY: AN IMPORTANT DECISION ON PROFESSIONAL SECRECY

The recent decision of the Supreme Court of Nebraska, abstracted in the Medicolegal department of THE JOURNAL last week,[1] is of importance and interest to practicing physicians, and especially to health officers. It establishes for the first time, by the decision of a court of last resort, the exact relations that exist between a physician and his patients, on the one hand, and a physician and the public, on the other. The details of the case, as shown by the evidence, are interesting and unusual. The plaintiff, while stopping at a small hotel, consulted a local physician, the defendant, regarding some sores that had appeared on his body. After an examination, the physician told the plaintiff—his patient—that he believed the disease to be syphilis, but that it was impossible to make a positive diagnosis without a Wassermann test, for which he had no equipment. The defendant

1. Disclosure of Confidential Information as to Contagious Disease, J. A. M. A. **75**: 1153 (Oct. 23) 1920.

physician was also the physician of the hotel, and the family medical adviser of the owner. He told the plaintiff that there was danger of communicating the disease to others in the hotel and asked him to leave the hotel the next day, which the plaintiff promised to do. On the following day, the physician, while making a professional call on the manager of the hotel, who was ill, learned that the plaintiff was still there. He thereupon warned the manager's wife that he thought the plaintiff was afflicted with a contagious disease, and advised her to use special precautions to avoid infection. As a result of this warning, the plaintiff was forced to leave the hotel. He consulted a physician in another town, who, after a negative Wassermann test had been made, was unable to say whether the plaintiff had syphilis or not. The plaintiff, thereupon, brought suit against the physician, claiming damages on the ground that he had been injured by a disclosure of a confidential communication, which disclosure constituted a breach of professional confidence on the part of the physician. There was no dispute regarding the facts; the question before the Supreme Court was whether the statement of the defendant physician that the plaintiff was suffering from a contagious disease constituted proper grounds for damages.

The court pointed out that, under the common law, no privilege exists between physicians and patients, and that this ruling prevails except when changed by statute. This means, in everyday language, that, contrary to the opinion generally held by both physicians and the public, communications made to physicians are not under the obligation of secrecy but have the same legal status as communications made to any one else, unless the state legislature has passed a special law on this subject. In Nebraska there is no special law making communications to physicians privileged. The legislature in 1913 passed a law providing that a physician should not be allowed to disclose on the witness stand any confidential communication made to him in his professional capacity. The object of this statute is obvious. It is to prevent confidential communications being used as evidence against the person making them or, in other words, to protect an individual from being forced to testify against himself. But in the present case the physician was not on the witness stand, so that this statute did not apply. Another statute—the medical practice act—in defining unprofessional and dishonorable conduct for which a physician's license may be revoked, includes among the acts of such conduct "betrayal of a professional secret to the detriment of a patient." Is such a communication as the defendant made in this case "unprofessional and dishonorable conduct"? After an exhaustive discussion, the court decides that it is not.

This is the first time that such a question has come before any American court of final appeal; hence the language of the court is important and worthy of repetition. The court says that information given to a physician by his patient, though confidential, is subject to the understanding that if the patient's disease is found to be of so highly contagious or infectious a nature that it may be transmitted to others unless the dangers of transmission are disclosed, then the physician is warranted in making so much of a disclosure to such persons as is reasonable and necessary to prevent the spread of the disease. Putting this ruling in ordinary language, it means that the court recognizes the fact that while a physician owes a duty to a patient to respect his privacy, he owes a duty to the public to protect it against infectious diseases, and that of these two duties the duty to the public is the greater. Yet the court recognizes that this duty to the public must be properly safeguarded. It furthermore says that when a physician makes a disclosure, he must be sure that it is necessary to prevent the spread of the disease, and must act in good faith with reasonable grounds for his disclosures and without personal malice toward the infected person. Having observed these precautions, he cannot be held liable, even though he is mistaken in his diagnosis and has stated that his patient is afflicted with a disease that he does not have. In other words, the question at issue is not the accuracy of the physician's diagnosis. The law does not require the physician to be infallible; he is only required to possess the average skill and ability of other physicians in similar circumstances and to exercise due care and skill. After having made a diagnosis to the best of his ability, if he believes honestly and without malice that the patient is a danger to another individual or to the community, he is justified in communicating so much of his belief as may be necessary to protect others from contracting the disease. The decision recognizes the fact that while a physician owes a duty to his patient, he also owes a duty to his other patients and to the public.

Current Comment

THE BEGINNINGS OF DISEASE

The crude and bizarre ideas of disease that were slowly developed into the medical conceptions of the cultivated oriental races, and subsequently evolved into the medicine of the classical period of antiquity, reach far back into the period of the prehistoric ages. As early as 4000 B. C., a sort of medical knowledge was already well established, so that the existence of disease must have been recognized ages earlier. The discovery of the beginnings of the history of medicine does not reveal the beginnings of disease on the earth. Did it precede man or was it contemporaneous with him? To such questions the newly recognized study of paleopathology is addressing itself. Germs are said to be among the oldest inhabitants of the earth. Moodie [1] defends the thesis, however, that disease did not exist with the most ancient bacteria. They were

1. Moodie, R. L.: Ancient Bacteria and the Beginnings of Disease, Scient. Month. **11**: 362 (Oct.) 1920.

harmless, as are most of the present-day bacteria. According to this paleontologist, disease did not become especially active until the present age of the earth had been attained by nearly three quarters of its duration. That is, disease, so far as animals and plants are concerned, has been active only during the last quarter of the earth's history. We cannot imagine that there were no accidents with resulting injury to early mankind; indeed, the fossil remains give evidence of such misfortunes. According to Moodie, however, disease in the guise of bacterial invasion was not a part of the life history of primitive man. It is interesting to speculate on the characteristics of life and living at a period when disease was at its very beginnings. Moodie's picture is a tranquil one. So firmly guarded, he writes, were the primitive animals of the first ages of the earth that no disturbing influences entered into their existence. Only when racial old age, and the introduction of other antagonistic influences disturbed this natural immunity, did animals see the new factor of disease enter into their lives. Early land animals doubtless lived long lives of placid contentment undisturbed by fear of infection either from within or without. What a mighty change the succeeding ages have wrought!

VASOMOTOR CHANGES AND THE CAPILLARY MECHANISM

Until quite recently the volume changes in the capillaries, which play an admittedly important part in the interchange of nutrients and waste products between the blood and the tissues, were supposed to be a direct sequence of alterations in the general blood pressure and consequently of the state of contraction of the arteries and arterioles. The latter have long been recognized as being capable of contractile changes in caliber under the control of the vasomotor nerve supply to them. The clear proof of the existence of both vasoconstrictor and vasodilator nerves dates back to 1852 and 1858, respectively, when Brown-Séquard and Claude Bernard discovered their true functions. Since then, as Krogh has expressed the situation, the prevalent line of thought has identified vasomotor changes with arteriomotor. This view assumes that all other changes in caliber taking place in peripheral vessels, and especially the filling of the capillary system, follow as physical consequences. Various observations have served of late to emphasize the probability that the caliber of the capillaries is, nevertheless, not simply a function of the pressure of the blood coming from the arterioles. Under a diversity of conditions they evidently may dilate or contract individually and independently of the blood vessels.[1] As has been pointed out before in THE JOURNAL, the behavior of the capillaries toward certain drugs leaves no alternative to the conclusion that dilator effects, for example, can be produced independently of any extrinsic nerve supply or alterations in the arterial circulation. In this sense, a capillary tonus may be said to exist. In studying the phenomenon in the tongue, Krogh[2] has concluded that only to a slight extent, if at all, can it be of nervous nature, since it is generally maintained after section and degeneration of the nerves that might be involved. The maintenance of this tonus is, however, dependent on the supply of blood. When the vessel gets no blood its tonus will diminish, and it must finally become relaxed and admit a current of blood which will allow it to regain its tone. Krogh concludes, therefore, that every capillary must alternately open and close, and in the resting tissue, which is poorly supplied with blood, the positions of open capillaries must be continuously changing, with the result that the whole tissue is uniformly irrigated when considered over a period of sufficient duration. The substance responsible for the tonic action of the blood is unknown, but it is shown that it cannot be oxygen. At any rate, it is easier under the present conception of capillary motor function to understand how circulating chemical substances can produce a direct or immediate effect on the vascularity and blood supply of any tissue.

1. Krogh, A.: J. Physiol. **52**: 457 (May) 1919.
2. Krogh, A.: Studies on the Capillariomotor Mechanism, I, The Reaction to Stimuli and the Innervation of the Blood Vessels in the Tongue of the Frog, J. Physiol. **53**: 399 (May) 1920.

CHIROPRACTIC PATHOLOGY

A "chiropractor" of Waukesha, Wisconsin, emits (at advertising rates) the following words of wisdom on the pathology of gallstones and kidney stones:

> Gallstones are due to an excessive amount of heat in the gallbladder which crystallizes the calcareous material in the bile and forms stones. This excessive heat results from the loss of calorific or heat control of nerves due to nerve pressure in the middle dorsal vertebral region. Adjustment of the causative subluxation restores the condition to normal. Renal stones are caused in the kidneys in the same manner.

This is the sort of medical "information" that is being fed the public by the cult calling itself "chiropractic"; and unfortunately the public is not in a position to realize its grotesque nonsense. But even to suggest that those who would treat human ailments should be grounded in certain educational fundamentals is to violate the tenets of "medical freedom"!

AMALGAMATION OF PHILANTHROPIC ORGANIZATIONS

The multiplicity of organizations with a common philanthropic purpose frequently leads to duplication of effort and to increased expense of conducting the work. To combat such a tendency in work for children now being carried on in this country, several organizations devoted to child health activities have recently organized a new group known as the American Council for Coordinating Child Health Activities. The purposes of the council, as reported by the *Survey*, are:

> To define so clearly their own work that each organization will be working in harmony and cooperation with all the others. To develop new methods which will lead to meeting more effectively some of the special problems still unsolved. To afford an opportunity for any organization dealing with the health of children to submit its plans and program for suggestion.

The council at present consists of the American Child Hygiene Association, the National Organization for Public Health Nursing, the American Red Cross, the Child Health Organization of America and the

National Child Labor Committee. It is also hoped that other organizations will be taken into the council. The location of the office of the new organization in Washington should lead to close cooperation with the Children's Bureau of the federal Department of Labor. Persons inclined to criticize may insinuate that the right way out is not the formation of a new organization to take care of other organizations but the gradual amalgamation and thereby elimination of duplicating organizations. Possibly such amalgamation may be brought about as a result of the formation of this council.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

New Health Officer in Montgomery.—Dr. Frederick W. Dershimer has been appointed city and county health officer of Montgomery to succeed Dr. Wilbur A. McPhaul, resigned. Dr. Dershimer has been acting as state director of rural sanitation for the last few months.

CALIFORNIA

New Hospital at Visalia.—The nine physicians of Visalia have organized a corporation and are constructing a new hospital to be known as the Kaweah Hospital, Inc., with a capacity of thirty beds. The hospital will be opened for patients about November 15.

Physicians Oppose "Anti"-Health Measures.—An intensive campaign is being waged by physicians against four antihealth measures which have been placed on the November ballot. These include the chiropractic initiative, the compulsory vaccination, the antivivisection and the poison acts. The first of these measures would create a special board of examiners for chiropractors, the second would prohibit compulsory vaccination, the third would prevent all experimental investigations with animals, regardless of whether the experiments involve the infliction of pain, and the fourth would nullify the passage of a legislative act to control the narcotic drug traffic.

CONNECTICUT

Yale Medical School Appointments.—Dr. George Blumer, formerly dean of Yale Medical School, has accepted a temporary appointment as clinical professor of medicine. He will be assisted by Dr. Wilder Tileston, both of New Haven.——Dr. Edward H. Hume, dean of the medical school of Yale-in-China, on leave of absence in this country, will serve as visiting professor of medicine.——Drs. John E. Lane and Alfred G. Nadler have been appointed clinical professors of dermatology, to succeed Dr. Ralph A. McDonnell, resigned.

DISTRICT OF COLUMBIA

Home for Science Organizations.—Through the generosity of a number of benefactors, the National Academy of Sciences and the National Research Council have obtained the block bounded by B and C streets, and Twenty-First and Twenty-Second streets N. W., facing the Lincoln Memorial in Potomac Park, as a site for a future home. Funds for the erection of the building have been provided by the Carnegie Corporation of New York.

FLORIDA

Personal.—Dr. R. G. Manchester, London, Ohio, has been appointed resident physician and head of the department of physical education at the University of Florida.——Dr. Grace L. Whitford, Ozona, has been appointed vice chairman of child welfare of the General Federation of Woman's Clubs.

Social Hygiene Department in University.—A department of social hygiene, designed primarily for the training of teachers and also to reach every student in the institution, has been created at the University of Florida, through the cooperation of the Interdepartmental Social Hygiene Board. The curriculum will include courses and conferences in sex hygiene and its direct personal and group applications.

GEORGIA

Harrison Act Violation.—It is reported that Dr. J. S. Cheshire, a negro physician of Atlanta, was sentenced to two years' imprisonment in the federal penitentiary after pleading guilty to five indictments charging violation of the Harrison Narcotic Law. He was accused of dispensing to drug addicts without requiring the presentation of the proper prescription.

Hospital Notes.—Ground has been broken for the erection of Emory Hospital, on the campus of Emory University. The hospital will serve for instruction in clinical branches in the Emory Medical School. It is expected that the central building of the hospital group will be ready for operation by Jan. 1, 1922.——Drs. Edward B. Claxton and William R. Brigham have purchased the Parker Home on Bellevue, Dublin, with the announced intention of converting it into a private hospital to be known as the Brigham-Claxton Hospital.

ILLINOIS

New Maternity Hospital in Mount Vernon.—Dr. H. Maxey Swift, Mount Vernon, has completed plans for establishing a maternity hospital at 1919 College Street. The hospital will have accommodations for ten patients and will be open to the use of the public and physicians of the city.

Chicago

Physician Loses Appeal from Criminal Sentence.—It is reported that the State Supreme Court has denied the appeal of Dr. Lillian Hobbs from a sentence of fourteen years imprisonment imposed after conviction on the charge of causing the death of Alda Christopherson by a criminal operation.

First Pasteur Lecture of Institute of Medicine.—At a meeting of the Institute of Medicine of Chicago, October 29, Prof. Graham Lusk, New York, delivered the first Pasteur Lecture on "Some Influences of French Science on Medicine." Professor Lusk was entertained at dinner at the City Club before the meeting.

Health Exposition Being Planned.—Plans are under way for an international health and sanitation exposition, to be held at the Coliseum and Annex, November 24 to 29. Dr. John Dill Robertson, city health commissioner, is director-general of the exposition, and the greater number of health agencies and organizations of the city will cooperate in a visualization of the value of health campaigns.

IOWA

New Medical Library.—A medical library has been opened on the second floor of the state historical building, Des Moines, and Miss Margaret Brenton, at one time with the Yale University Medical Library, has been appointed librarian. The nucleus of the new library was formed from a collection of books formerly the property of Drake University. Physicians throughout the state may use the library.

State College Reorganizes Health Service.—A reorganization of student health service of the Iowa State College was recently accomplished by the establishment of a department of hygiene in charge of Dr. N. C. Paine, assisted by Dr. Charles G. Tilden, Ames, college physician. This new department of hygiene will administer the college hospital and dispensary and will undertake at once the work of examining all new students. Plans for the department include the supervision of the hygienic and sanitary conditions in the student lodging houses.

KANSAS

Kansas Health Association Receives Charter.—The Kansas Public Health Association, formed by the union of the Kansas Health Officers' Association, Kansas State Tuberculosis Association and the Mental Hygiene Committee of Kansas, recently received a charter, providing for five sections: on general public health, health officers, public health nurses, tuberculosis and sanitary engineers. Other sections will be created as need arises. The officers of the association are: president, Rev. Edmund Janes Kulp, Topeka; vice presidents, William Allen White, Emporia, and Dr. Samuel J. Crumbine, Topeka; secretary, Dr. Charles H. Lerrigo, Topeka, and treasurer, Dr. Earle G. Brown, Topeka.

KENTUCKY

Medical Association Holds Annual Meeting.—The seventieth annual convention of the Kentucky Medical Association, was held in Lexington, September 27-30, under the presidency of Dr. John G. South, Frankfort, and the following officers were elected: president, Dr. William W. Anderson, Newport; president-elect, Dr. Joseph A. Stucky, Lexington; vice presidents, Drs. Robert H. Cowley, Berea, Alice N. Pickett, Louisville, and Elbert W. Jackson, Paducah, and secretary, Dr. Arthur T. McCormack, Bowling Green. A memorial portrait of Dr. Joseph N. McCormack, for many years secretary of the state board of health, was presented at the first public session held in the Central Christian Church. Dr. Hubert Work, Pueblo, Colo., president-elect of the American Medical Association, delivered an address. Louisville was selected as the place of meeting for 1921.

LOUISIANA

Orleans Medical Society News.—The Orleans Parish Medical Society recently sold its home to the Order of Elks for about $50,000, and has secured temporary quarters in the Hutchinson Memorial of the Tulane Medical College, 1551 Canal Street.——At the regular meeting of the society in September, $5,000 was appropriated for the use of its medical library.

Committee on Narcotic Habit.—A committee of the Orleans Parish and Louisiana State medical societies, appointed at the request of the state board of health, recently formulated plans for dealing with the narcotic question. It was resolved that the present narcotic clinic should be continued for two months as a temporary measure and that institutional treatment be provided for the attempted radical cure of the patients attending the clinic, and the aid of various social agencies be enlisted to secure occupation for the apparently cured patients away from their usual haunts.

MARYLAND

Herter Foundation Lectures.—The eleventh course of lectures under the Herter Foundation was delivered by Dr. Jules Bordet, director of the Pasteur Institute, Brussels, in the medical amphitheater, Johns Hopkins Hospital, October 26, 27 and 28.

Physicians Fined for Narcotic Act Violations.—On charges of violating the federal narcotic drug act the following physicians are said to have been fined recently in the federal court at Baltimore: Dr. Chauncey T. Scudder, fined $100 and costs and made to surrender his license to dispense narcotics; Dr. Albert D. Driscoll, fined $1,000; Dr. Joseph J. Nurkin, $450; Dr. Hugh M. Boring, $400; Dr. John I. Kuhn, $400; Dr. William M. Wright, $300, and Dr. Thomas H. Magness, $4,500.

Personal.—Colonel Masi, chief surgeon of the Paraguayan Army and a prominent surgeon in that country, is in Baltimore to make a study of the medical and surgical institutions of the city.——Dr. Kenneth D. Blackfan, associate professor of pediatrics at the Johns Hopkins Medical School, has been appointed professor of pediatrics at the Medical College of the University of Cincinnati.——Dr. Victor G. Heiser, director for the East of the International Health Board, recently delivered a lecture at the School of Hygiene and Public Health of the Johns Hopkins Hospital on the Halifax health program and on the work done by the United States Government in the betterment of health conditions in its dependencies.

MASSACHUSETTS

Superintendent Chosen for New Sanatorium.—Dr. Olin S. Pettingell has been chosen superintendent of the Essex Sanatorium at Middleton as soon as the institution is ready for operation. It is expected that 100 beds will be in service by the first of the year and that later expansion will bring the capacity to more than 200 beds.

Boston Surgeon Goes to China.—Dr. Frank P. Gaunt, who has been pursuing advanced studies at the Massachusetts General Hospital, Boston, has left for China to reorganize and enlarge the American Hospital in Wuhu, of which he is director. He will be assisted by members of the staff of the Massachusetts General Hospital. Wuhu has the only hospital for 10,000,000 people in the Anhwei Province.

MINNESOTA

Health Associations Move Offices.—The offices of the Hennepin County Tuberculosis Association and of the Hennepin County Public Health Association have been moved from Kasota Building to the Handicraft Guild, 89 South Tenth Street, Minneapolis. The Associated Charities and the Children's Protective Association will move their offices to 315 Temple Court.

County Society Elects Officers.—At the annual meeting of the St. Louis County Medical Society, held at the Duluth Commercial Club, Duluth, the following officers were elected for the ensuing year: president, Dr. Emanuel Z. Shapiro, Duluth; vice presidents, Drs. Rush L. Burns, Two Harbors, Leslie W. Morsman, Hibbing, and secretary-treasurer, Dr. Robert S. Forbes, Duluth.

MISSISSIPPI

Homochitto Valley Society Elects Officers.—At the annual meeting of the Homochitto Valley Medical Society, held in Natchez, October 13, the following officers were elected: president, Dr. John W. D. Dicks, Natchez; vice presidents, Drs. Richard D. Sessions, Natchez; Thomas E. Hewitt, Liberty; John L. Calcote, Hamburg; George M. Barnes, Red Lick, and William I. Marsalis, Centerville, and secretary-treasurer, Dr. Jacob S. Ullman, Natchez.

MISSOURI

Postgraduate Clinics.—The St. Louis Post Graduate meeting, held under the auspices of the St. Louis Medical Society, has been scheduled for November 16-18. The program committee has urged every hospital in the city to arrange clinics and to submit their program at an early date.

Trachoma Lecture and Demonstration.—Major John McMullen, U. S. P. H. S., chief of the field work for trachoma, held two trachoma clinics at the Public Health Service Hospital in St. Louis, October 26, and in the evening gave an illustrated address on "Trachoma," at the regular meeting of the St. Louis Medical Society.

NEW MEXICO

State Medical Society Elections.—At the annual meeting of the New Mexico Medical Society, held in Roswell, October 15 and 16 under the presidency of Dr. Charles A. Frank, Albuquerque, the following officers were elected for the ensuing year: president. Dr. Hugh V. Fall, Roswell; president-elect, Dr. Chester Russell, Artesia; vice presidents, Drs. Joseph S. Cipes, Albuquerque, Charles M. Yater, Roswell, and William F. Wittwer, Los Lunas; secretary, Dr. Frank E. Tull, Albuquerque, and treasurer, Dr. John W. Elder, Albuquerque. The next annual meeting will be held in Albuquerque in April or May, the exact date to be fixed by the Bernalillo County Medical Society.

NEW YORK

New Medical Director for Hospital.—Dr. John H. Carroll, Oswego, has recently been selected as head of the Glens Spring Hospital at Watkins Glen.

Investigation of Sanitary Condition of County Fairs.—The engineering division of the state department of health is making a sanitary survey of all county fairs, with reference to water supply, sewage, garbage and refuse disposal and the adequacy of toilet facilities. In many instances conditions have been found to be very unsatisfactory.

Postgraduate Courses at Albany.—The Bender Hygienic Laboratory, Albany, announces postgraduate courses of instruction in surgical pathology, diseases of the gastro-intestinal tract, diseases of the heart and kidney, tumors, diseases of the blood, and laboratory technic, consisting primarily of pathologic studies, but including clinical material whenever possible. Meetings will be held each Thursday at 4 p. m.

New York City

Venereal Diagnostic Clinic Moves.—The Manhattan Venereal Disease Treatment and Diagnostic Clinic has removed to the department headquarters at 505 Pearl Street, Manhattan.

The Carpenter Lecture.—At the stated meeting of the New York Academy of Medicine, October 21, Sir Berkeley Moynihan of Leeds, England, delivered the Wesley M. Carpenter Lecture, on the subject of "Gastric Ulcer and Its Treatment."

Increase in Open-Air Classes.—The board of education will provide for twenty-four additional open-air classes in the city during 1921. The borough chiefs of the Bureau of Child Hygiene have been requested to make an analysis of

those schools in which previous surveys have shown a large percentage of malnutrition and to forward recommendations as to the schools in which these classes should be opened. A tentative allowance by boroughs assigns seven to Manhattan; nine to Brooklyn; three to the Bronx; three to Queens, and two to Richmond.

NORTH CAROLINA

Personal.—Dr. J. H. Hamilton, Owensboro, Ky., has been appointed health officer of Wilmington to fill the vacancy caused by the resignation of Dr. R. A. Hering.——Dr. John E. S. Davidson, Charlotte, has been appointed a member of the board of directors for the state hospitals for the insane to act as a member of the executive committee to the hospital at Morgantown.

Physicians Form Group Clinic.—A group of physicians, including Drs. William Allan, John R. Aske, Robert F. Leimbach, Oren B. Moore, Alonzo Myers, J. M. Worthington, Charles M. Strong, and John Q. Myers have purchased an apartment on Carnegie Court, Charlotte, for the purpose of adapting the building for medical purposes and establishing a centralized clinic.

OHIO

Cincinnati Medical College Centennial.—At the centennial celebration of the College of Medicine of the University of Cincinnati, to be held, November 6, Mr. James R. Angell, president of the Carnegie Foundation, New York, Sir Auckland Geddes, British Ambassador, Hon. John Barton Payne, Secretary of the Interior, and Drs. Louis Schwab, Cincinnati, Rudolph Matas, New Orleans, and Charles R. Stockard, Utica, N. Y., will deliver the principal addresses.

Hospital Appointments.—Dr. Marion S. Reynolds, assistant physician at the state hospital, Columbus, for the last two years, has been appointed superintendent of the Children's Hospital, Columbus.—— The volunteer medical and surgical staff of the Ohio Soldiers and Sailors' Orphans' Home, Xenia, has been enlarged by the appointment of Dr. Burch C. West, Cincinnati, to the chair of physical diagnosis, and Dr. Lawrence Shields, Xenia, to the chair of nose and throat. Dr. William A. Galloway was elected dean of the board and Dr. Asa C. Messenger, Xenia, secretary.

OKLAHOMA

Home for Girls Proposed.—A detention home for girls, to be supported jointly by the city of Lawton and the state, will shortly be opened at Lawton according to the announcement of Dr. Arthur R. Lewis, state health commissioner. The home will have a capacity for thirty girls and will be supervised by a matron and a physician.

OREGON

Public Health Legislation Committee Formed.—A committee for the protection of public health to fight the initiative measure known as the anticompulsory vaccination measure has been formed by representatives of the Oregon State Board of Health, Portland City Board of Health, Oregon Tuberculosis Association, Oregon Social Hygiene Society, Portland Ministerial Association, and city, county and state medical societies and other organizations interested in public health and welfare. At the first meeting held in Portland, October 11, plans were formulated for a systematic campaign against the bill which is described as "not only a direct attack on smallpox vaccination, but an attack on all other kinds of vaccination, inoculation and medication now used as a preventive of or a cure for communicable diseases."

PENNSYLVANIA

Grade Crossing Fatalities.—Collisions between automobiles and trains, the majority of which occurred at unprotected grade crossings, caused the death of thirty-eight persons and the injury of 158 in Pennsylvania during the first six months of 1920, according to an announcement of the public service commission. Ninety-three automobiles and thirty-one wagons were struck at unprotected crossings, twenty automobiles were struck at crossings protected by watchmen, and sixteen at crossings protected by bells.

Health Officers Appointed.—Commissioner of Health Edward Martin has appointed the following officers to fill vacancies caused by resignations: Dr. Robert G. Barck'ey, Milford, medical director for Pike County, Dr. Conrad S. Reber, West Reading, medical director for Berks County, and Paul Cleaver, Reading, consultant of the department of health for Berks.——A new staff has been appointed for the Harrisburg Clinic, State Tuberculosis Division, consisting of Drs. Harry J. Kirby, John W. MacMullen, Clarence W. Batdorf, Arthur L. Page, Sylvia J. Roberts and Martin W. Emerick.

Philadelphia

Personal.—Dr. Albert Hyman, formerly of the Long Island Hospital, Brooklyn, has assumed his duties as superintendent of Mount Sinai Hospital.——Dr. Albert P. Francine has been appointed chief of the division of tuberculosis dispensaries of the State Department of Health.

Campaign for Healthy Children.—A health campaign among the 200,000 children under 6 years of age will be begun immediately by Dr. John Blair Spencer, who resigned last week as physician-in-chief of the department of public welfare to head the medical staff of the Philadelphia Health Council and Tuberculosis Committee. A fairy play, called the "Health Fairies," will tour all sections of the city in an effort to visualize the lessons of health in a manner that will carry a special appeal to the young children.

SOUTH CAROLINA

Lee County Issues Health Journal.—Lee County has issued the first number of its new health organ known as *Lee County Health Journal*, under the editorial supervision of Dr. Paul Knotts, county health officer.

Tuberculosis Clinics Opened.—A free tuberculosis clinic will shortly be opened in the health offices at Anderson city hall under the auspices of the Piedmont Tri-County Tuberculosis Association. The clinic will share the offices of Dr. J. C. Mitchell, city health officer.

TENNESSEE

State Trachoma Hospital Moved.—The state trachoma hospital, formerly operated at Tazewell, has been moved to Morristown because of the latter town's proximity to the main railroad lines.

New Settlement House and Clinic.—The first of a series of three buildings of the new Episcopal settlement house and clinic, located at Fifty-Fifth Street and New York Avenue, West Nashville, is under construction. The clinic will be known as St. Luke's Community House.

VIRGINIA

Personal.—Dr. William A. Brumfield, formerly with the state department of health, has been appointed full-time health officer and professor of hygiene in the Virginia Polytechnic Institute, Blacksburg.

Health Board Resigns.—Following the adoption of a resolution by the council of the city of Charlottesville requesting the board of health not to reappoint a certain health inspector, five members of the health board tendered their resignations on the ground that the resolution implied lack of confidence in their judgment.

WEST VIRGINIA

Medical School Increases Staff.—The following have been added to the staff of the School of Medicine, West Virginia University: In the department of anatomy, J. Floyd Morrow, B.S.; in the department of bacteriology and pathology, T. J. Murray, M.S., associate professor, and Raleigh L. Moler, B.S., assistant; in the department of physiology and physiologic chemistry, Dr. J. Earl Thomas, associate professor of physiology, and H. C. Van Der Heyde, D.Sc., Heemstede, Holland, assistant in physiologic chemistry; in the department of pharmacology, Dr. Cassius H. Hoffrichter, associate professor of pharmacology and physiology, and C. E. Beers, Ph.G., assistant.

WISCONSIN

Proposed Health Legislation.—The program of the state board of health during the coming legislative session, as announced by Dr. Cornelius A. Harper, state health commissioner, will seek the increase of the number of health districts from five to at least eight or ten, with full-time deputy health officers. It will be proposed that every municipality with a population of 20,000 provide a full-time health officer with full equipment, and the recommendation will be made that the present bureau of child welfare and public health nursing be divided into two departments.

CANADA

Toronto Public Nursing System.—Dr. Charles H. Gardner, U. S. P. H. S., in charge of the Marine Hospital at Buffalo, on a visit to Toronto last week made a study of the public health nursing system of Toronto, and commented favorably on its attainments.

Public Health Notes.—Because the physicians practicing among the miners in Nova Scotia are asking increased fees, the miners have decided to import medical men from other centers.——A provincial laboratory of public health is to be located at Owen Sound, Ont.——Waterloo County, Ont., is organizing a health association.

University Memorial.—The funds collected from subscriptions toward the University of Toronto Memorial Fund, now totaling more than $331,000, are being used by the scholarship board as a memorial loan fund for returned soldiers. Last year $37,000 was loaned from the fund, a substantial portion of which sum has already been returned to the board.

Cancer Serum Under Investigation.—The Academy of Medicine, Toronto, has appointed a special committee to conduct an investigation into the alleged claims of Dr. Thomas J. Glover for his "cancer serum." The committee includes Dr. Jabez H. Elliott, president of the academy; Dr. Harry B. Anderson, past president of the Ontario Medical Association; Dr. John J. Mackenzie, professor of pathology in the University of Toronto; Dr. Wilbur H. Harris, dean of Grace Hospital, and Dr. John Harris McPhedran. A preliminary investigation has been made, but, although the public press has reported about the large number of patients who testified as to the value of the treatment, neither the special committee nor the academy has authorized any official report for publication.

GENERAL

Southern Medical Association Meeting.—The fourteenth annual session of the Southern Medical Association will be held in Louisville, November 15-18, under the presidency of Dr. Edward H. Carey, Dallas, Texas.

Pacific Surgical Association Meeting.—The eighth annual session of the North Pacific Surgical Association will be held in Spokane, December 10-11, under the presidency of Dr. John O'Shea. The membership list includes surgeons of Washington, Oregon and British Columbia.

Tri-State District Medical Society Elects Officers.—This organization, at its annual meeting in Waterloo, Iowa, elected the following officers for the ensuing year: president, Dr. G. V. I. Brown, Milwaukee; president-elect, Dr. John E. O'Keefe, Waterloo, Iowa; vice presidents, Drs. Walter L. Bierring, Des Moines, Iowa, Joseph S. Evans, Madison, Wis., and Edwin P. Sloan, Bloomington, Ill., and secretary-treasurer, Dr. Domer G. Smith, Freeport, Ill. (reelected).

Academy Holds Annual Meeting.—At the twenty-fifth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Kansas City, Mo., Oct. 15, 1920, the following officers were elected for the ensuing year: president, Dr. Emil Mayer, New York; vice presidents, Drs. John R. Newcomb, Indianapolis, Robert Ridpath, Philadelphia, and W. C. Finnoff, Denver; treasurer, Dr. Secord H. Lodge, Cleveland; secretary, Dr. Luther C. Peter, Philadelphia, and editor, Dr. Clarence Loeb, Chicago. The next meeting will be held in Philadelphia.

Bequests and Donations.—The following bequests and donations have recently been announced:

Associated Jewish Charities, $15,000, by the will of Albert Stein, Chicago.

Home of the Merciful Savior for Crippled Children, Philadelphia, $10,000, by the will of Emily Baker Elliott.

Presbyterian Hospital, Philadelphia, to endow a free bed in memory of his daughter Maude E. Benson, and Pennsylvania Hospital, each $5 000, by the will of Colonel R. D. Benson.

Sanitarium for Hebrew Children of the City of New York, Montefiore Home, Hebrew Infant Asylum, Home for Aged and Infirm Hebrews, Beth Israel Hospital, Lebanon Hospital, Jewish Maternity Hospital, United Hebrew Charities and the Crippled Children of the East Side Free School, each $5,000; Mount Sinai Hospital, $3,000, and Hospital at Albany, Ga., $1,000, by the will of Max J. Breitenbach.

St. Mary's Hospital, Philadelphia, $300, by the will of Bridget Starin.

St. Luke's Hospital, Philadelphia, on the death of the last annuitant specified in the will, a sufficient amount to endow a free bed, by the will of Anna E. Burton.

Methodist Episcopal Hospital, Philadelphia, $5,000, by the will of Ellen A. Yewdell.

University of Cincinnati, Medical College, a gift of $250,000 to create a trust fund, the income from which is to be used for the maintenance of a department of pediatrics to be known as the B. K. Rachford Department of Pediatrics, by Mrs. Mary M. Emery, Cincinnati.

LATIN AMERICA

Children's Hospital in Mexico.—The government has ordered the construction of a children's hospital in the city of Mexico, which will have 1,000 beds and will be free for indigent children.

New Manager of the Gaceta Médica of Caracas.—Dr. A. Herrera Vegas has been designated by the National Academy of Medicine to fill the position of manager and assistant editor of the *Gaceta Médica de Caracas.*

Disease Investigation in Santo Domingo.—At the request of the Department of Sanitation and Beneficence of Santo Domingo, Harvard University has sent a commission of physicians to study "buba" cases and prescribe the measures necessary for the eradication of this disease.

FOREIGN

Smallpox on Canary Islands.—The *Medicina Ibera* states that smallpox is making considerable ravages at Teneriffe as the inhabitants absolutely refuse vaccination.

Bust of Saugmann Presented to Sanatorium.—The Vejlefjord Sanatorium in Denmark recently celebrated the twenty-fifth anniversary of the meeting of the Danish Medical Association at which the plan for founding the sanatorium was started. The famous sanatorium has been in operation for twenty years. The bust of Dr. Saugmann was presented by a group of sanatorium patients.

Racial Biology Institute.—The Swedish government has approved the plan to found an institute for research on the biology of the race, and has asked the Stockholm medical faculty to plan the institution. A committee from the faculty has been appointed for the purpose, comprising Drs. Lennmalm, Johansson, Müller and Gadelius, of the chairs of neurology, physiology, anatomy and psychiatry, respectively.

Belgian Sanitary Train for Poland.—The *Scalpel* states that Professor Depage of Brussels has organized a sanitary train to carry medical supplies and relief to Poland. The train has been equipped for a sixty bed hospital by the Red Cross and the minister of national defense. The expense of maintenance has been assumed by the society "Pro Polonia." The physicians and nurses are all Belgians, with an army surgeon in charge.

Fasting Records.—The *Vie médicale* cites from a recent lecture by Richet to the effect that seven fasters survived from twenty-five to fifty days of fasting, including Succi, thirty days; Tanner, forty days; Merlatti, fifty days. The Bérard miners survived fourteen days, the Licetus miners, seven, and the Bois-Monzil miners six days. Others that succumbed were Devilliers' insane patient, the seventy-sixth day; Desbarreaux' patient, sixty-three days, and Lépine's, Hufeland's and Viterbi's patients the sixteenth and seventeenth days.

International Psychanalysis Congress.—The Sixth Congress of the International Psychanalysis Association convened at The Hague, September 8 to 11, with a comparatively large attendance—about 130—from all the countries having societies for the study of psychanalysis, including the central empires, and one member from Belgium where there is no organization. Dr. Ferenczi of Budapest, the president of the international association, presided at the opening meeting. Freud described his latest research on the explanation of dreams, but he rejected the "prospective tendency" which Moeder and Jung accept. The *Nederlandsch Tijdschrift voor Genceskunde* brings quite a full report of the meeting. The next one is to convene at Berlin in September, 1921.

CORRECTION

Rats, Not Guinea-Pigs, Used for Testing Arsphenamin.—In the editorial on "The Popular Arsenicals," THE JOURNAL, October 9, the statement is made that guinea-pigs are employed for testing the toxicity of arsphenamin. Our attention has been called to the fact that according to the official procedure adopted by the Hygienic Laboratory of the U. S. Public Health Service, albino rats and not guinea-pigs are used for this purpose. Official acceptance of a preparation of arsphenamin requires the survival of at least 60 per cent. of the rats tested for a period of not less than forty-eight hours after injection of 100 mg. per kilogram of body weight. A 2 per cent. aqueous solution of arsphenamin is used. For neo-arsphenamin, a 4 per cent. solution is used, and official acceptance requires survival of at least 60 per cent. of the number of rats tested for a period of not less than seven days after injection of 200 mg. per kilogram of body weight.

Government Services

Medical Field Service School

The Army Medical Department Field Service School at Carlisle, Pa., has been formally opened in buildings which served the purposes of a general hospital during the war. The courses of instruction comprise administration, correspondence, preparation of reports and returns, subsistence, clothing and housing of soldiers, hospital care of sick and wounded, sanitary organization, field sanitation, company tactics and maneuvers.

Training of Enlisted Medical Personnel

The Surgeon-General has endorsed a recommendation providing that all recruits enlisted for the Medical Department of the Army be first trained as infantry soldiers for a fixed length of time. The result of such a plan, it is claimed, will materially add to the soldierly bearing, discipline and general efficiency of the men and will stamp them as real soldiers after they have become members of the Medical Corps.

Venereal Diseases in Drafted Men

Statistics compiled by the U. S. Public Health Service from the War Department records show that 3 per cent. of the first million drafted men whose examination blanks reached the Adjutant-General's Office were suffering from a venereal disease when they reported to camp. Of the second million drafted men examined at the mobilization camps, 5.4 per cent. had either syphilis, gonorrhea or chancroids. During the year 1918, the records for the entire Army were compiled by states; the average rate for venereal diseases was about 4 per cent.

Reserve Officers Training School Units

An effort will be made by Surgeon-General Ireland to establish a Reserve Officers Training School Unit in every Class A medical school in the country. The original plans of the War Department contemplated the inauguration of these schools in only ten medical colleges, but it has been decided to include all medical schools that can enroll the required minimum of fifty students. An officer of the Medical Corps is assigned to each school to conduct the course, which extends over four years, after the successful completion of which the graduates are awarded commissions in the Reserve Medical Corps.

Public Health Nursing at Army Posts

An experiment in public health nursing, made among the families of soldiers at Camp Jackson, S. C., has attained valuable results and will lead to adoption of the system at other military posts. A suitable nurse was selected and assigned to visit the families of the enlisted personnel at the post for the purpose of giving advice in the proper care of children and of the sick. Pregnant women were advised on the necessary preparations for confinement and on questions of personal hygiene. The service did not entail the actual nursing of children and the sick, but proved an excellent adjunct of preventive medicine, as the visits afforded opportunity for the early detection of infectious and communicable diseases.

Public Health Courses in Tuberculosis Diagnosis

The Public Health Service has recently opened mobile training courses for the early diagnosis of tuberculosis in Illinois, Wisconsin, Michigan and Washington. Similar courses have already been given in Texas, Louisiana, Missouri, Virginia, West Virginia, Maryland and Pennsylvania. The courses last seven days and are at present open only to physicians attached to the Public Health Service; but it is hoped that later it may be possible to hold similar courses for the benefit of other physicians who may desire to attend. The instruction is given by recognized experts in the diagnosis of pulmonary tuberculosis, and is supplemented by the showing of a remarkable motion picture, in six reels, which minutely illustrates every phase of the disease.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 9, 1920.

Sexual Problems

The National Birth-Rate Commission, under the presidency of the Bishop of Birmingham, has begun an inquiry into the problems of sex connected with adolescence. The purpose is to investigate the influences that affect the welfare of young persons as potential parents. Miss Norah March was the first witness called. She said that whether or not chastity was the best preparation for parenthood seemed to be a point on which medical and psychologic thought was not yet agreed. Personally holding that love should be the basis of marriage, she held that as a general social code the tenet of chastity as a preparation for marriage was the ideal. If marriage was delayed until late in life, chastity might be supremely difficult to many, while those to whom it was impossible were confronted with the problem of celibacy. Our social code in these matters was undergoing a change. The future might see some form of extramarital sex relationship and parenthood finding a place in our social code. There were many more women than men in this country. The wider education of girls, their entry into the world of labor, in short, their general emancipation, all tended toward a liberation of natural impulses and a desire for freedom of choice. The right to motherhood was a doctrine that was gaining ground. It was essential that a system of education—using the word in its broadest sense—should provide emotional and intellectual compensations for those to whom the more complete life was denied. The preparation of the young citizen for worthy parenthood was no simple matter merely of appropriate instruction. Though accurate knowledge might be a great help, it did not of itself empower the individual to follow the line of conduct chosen. To begin with the ethical considerations, without a firm basis of the biologic, psychologic, social and racial relations, was to court failure. Many more parents were learning to give information to their children on such subjects as birth and sex. Supplementary instruction in biology, physiology, and hygiene could best be given in school and other classes. As to venereal disease, she deprecated strongly its prominent presentation in instruction of the young. The pseudomorality induced by the fear of the disease might even be detrimental to character. Moreover, the fear did not deter on any large scale.

There has been drawn up recently an outline of a further inquiry by the National Birth-Rate Commission, which is designed to promote a further constructive effort. It is to embrace the development of the individual from the physiologic and psychologic standpoints, and take notice of the conditions under which the adolescent lives and works, and the social and moral influences to which he or she is exposed, especially at puberty and onward. It must include the extent to which worthy ideals of citizenship and parenthood are inculcated by education in its widest sense, by religious influence, by education in its widest sense, and by the atmosphere of the home, school, university, workshop and factory. The question of sex education is to be considered, and incidentally coeducation of boys and girls. The influence of various industrial occupations on fertility and healthy parenthood will also be inquired into. By exchanging an essentially feminine for an essentially masculine outlook, it is thought that our women may unknowingly be prejudicing the interests of their children and the race.

Physician of 97 in Practice

The resignation of Dr. William Gibson, at the age of 97, from the position of parochial medical officer for Campbell-

town, Argyllshire, which he has held for sixty-five years, is announced. The old doctor is evidently still "going strong," for his resignation from a number of other appointments which he holds, such as health officer, public vaccinator and police surgeon, is not announced. He graduated in the University of Edinburgh in 1854, and contributed a paper to the *Edinburgh Medical Journal* on "Carbuncle" in 1857, and one on "Smallpox and Vaccination in Campbelltown" in 1862. He is described as the oldest practicing physician in the United Kingdom, but it would be interesting to know whether any other country or any other period could furnish a record of active medical work at such an advanced age. He has evidently, by resignation from one of his appointments, only just found out that he is not quite so young as he used to be. He is still in full possession of all his faculties, and his tall, slightly bent form can be seen moving actively about the town.

Opening of the Winter Session

The winter session of the medical schools has been opened with the usual ceremonies and addresses. At St. Mary's Hospital, Dr. J. G. Adami, vice chancellor of the University of Liverpool (formerly professor of pathology in McGill University), presented the prizes and certificates gained by the students, and delivered the address. He said that the universities and professional schools found themselves in parlous state. Students were pouring into all the professions in numbers double those before the war, the demand for extra accommodations was urgent, and the cost of providing it had soared to an unheard of height. Like coal miners and bricklayers, university teachers must live, even if they manage to exist on stipends below the wages received by coal miners. So great had been the increase in the cost of living that, whereas a junior member of the staff was content with $500, his small personal fortune, or what he could make by the side, and his expectations, today, with the rise in the cost of clothes, lodging, and boarding, $1,250 was the minimum that sufficed. With such rising expenditure it was no wonder that the universities in their distress turned to the government, but only to be told by the chancellor that he had done more to aid education than any previous chancellor, that he was at his wit's end to meet the financial needs of the nation, and that he could do nothing to help those who did not help themselves. He as much as directed them to raise their fees, and only when they had done everything possible to come again. Unfortunately for the proposal, the universities had responded with open arms to the request of the minister of education to accept ex-service students, which they did to the limit of their capacity. They were also told that the ministry would not meet increased fees for the students already on the roll. He was on principle strongly opposed to seeking help from the government. What through generations had distinguished English universities was their independence of government. Mr. Chamberlain had done well to compare the results of English university education with those of the German system, to compare the sturdy independence and resultant active initiative of the British system with the formalism and repression of the German machine system. In three years the English scientists not merely caught up but advanced further those positions in what he might term offensive science gained by the Germans through thirty years of laborious effort. It was through their subservience as government officials that the Prussianized professors supported the military caste in leading Germany headlong into disaster. It would be an evil day for England when our universities and hospitals came under the government yoke.

CRITICISM OF THE GERMAN AND AMERICAN UNIT SYSTEM

Dr. Adami was more than a little nervous about the present strong movement for full-time professorships in medicine, surgery and midwifery, and the development of the unit system which had come to us from Germany through America (described in previous letters to THE JOURNAL). Could this system of German origin be securely grafted on our English system method of teaching medicine? In Germany the results seemed to him to have been very significant, not to say sinister: such results as none of them wished to see in these isles. Here the human being was the first consideration; but in Germany and Austria, hospital patients might too often be so many animals. The ordinary product of a German medical school had far less thorough and all-round general medical training than had the English medical student; he was a poorer practitioner. If we established the unit system, we would encourage the German defects—neglect of good general all-round teaching for all, and encouragement of the student to specialize too early in his career. He congratulated St. Mary's Hospital on its independence, which involved loss of revenue from the government, in not slavishly adopting the scheme of full-time professorships in medicine and surgery, and establishment of the unit system, but in adopting a scheme of its own. [It should be pointed out that St. Mary's has adopted the unit system, but the directors are part-time.] If classification and mastery of detail were science, then Germany was *par excellence* the home of scientific medicine. If, on the other hand, deduction of broad scientific principles from those details was the highest form of science, then it was remarkable that the great advances of medicine had not come from Germany—anesthesia, antisepsis, the development of neurology—from the recognition of motor and sensory nerves, through the work of Gull, Hughlings Jackson and Ferrier, to the latest studies of Sherrington and Head; the recognition of the internal secretions, hormones and vitamins; cardiac physiology, and a long list that might be given. The Germans had excelled in detailed studies of particular diseases, but where they were to be credited with notable discoveries it was noteworthy that those whose names were known to all were not university professors, were not clinical but laboratory men—Virchow, Koch and Ehrlich. A weak point in the English system was that it made for the solitary leader, not for the establishment of schools. Men like Bright and Addison, and even those of greater caliber, like John Hunter, remained isolated and had no successors to maintain their tradition. A grave mistake made in Germany, and followed in too many schools here and in America, was establishing the pathologic school away from the hospital. Pathology was the whole scientific investigation of disease, not as Virchow and, following him, the Germans in general considered it—gross and minute morbid anatomy. Dr. Adami finally pleaded for an institute of pathology in the medical school, to become the center of scientific research in connection with the wards and the individual patient.

Physicians Strike Against Miners

A tyranny which has become disastrous in this country is that called "organized labor." A combination of the men engaged in some industry vital to the country, such as miners, transport workers and railway men, go through the facile process of persuading themselves that they ought to have more without the slightest regard for others, often much worse off than they are. The granting of each exaction brings only temporary peace, and a fresh exaction quickly follows. The increased cost of living is given as a plausible reason; but as each exaction sends it up farther, the process is interminable. The most glaring example of the tyranny of the combinations is furnished by the bricklayers, who are paid three times as much as before the war but refuse to lay more than a third of the bricks possible, or allow discharged soldiers to enter their trade, notwithstanding that since the war, house accommodations have become so deficient that the

minister of health has had to take the problem up. Another truculent body is the miners, who, although the best paid manual workers in the country, with wages in some cases that a professional man with expensive appearances to keep up of which they know nothing might envy, are now holding a blunderbuss at the head of the country and threatening a strike which might be as disastrous as a war, in order that they may get still more. But, like all persons acting from selfish motives they are greatly disturbed when they become the subject of their own methods. In Nottingham and Derbyshire they are in the position of having to come to terms with a strike directed against themselves. Medical practice among them is carried on according to the contract or club (lodge) system. At present they pay a flat rate to the physicians of $4 per annum per family, irrespective of its size. The Nottingham branch of the British Medical Association gave notice to all the clubs of its intention to raise the rate to $6.50. The miners refused, whereupon the physicians gave notice of termination of all contracts by September 30. This considerably upset the miners, who offered $5. This offer is to be considered next week. The increased cost of living, of which the increased wages of the miners is one of the causes, is the reason for the demand for an increase. The physicians decline to be what the leader of the miners repudiated as a function for them—"wage slaves."

BERLIN

(From Our Regular Correspondent)

Oct. 2, 1920.

Meeting of the Society of Naturalists and Physicians

The first meeting in seven years of the Gesellschaft deutscher Naturforscher und Aerzte, held at Bad Nauheim, was attended by 2,600 members—additional evidence of the high regard in which this largest and oldest scientific society of Germany is held. Among the principal subjects of interest of the meeting were the newer researches in physical science, including the structure of molecules and atoms, and the Einstein theory of relativity. The papers of Dr. Max Rubner, Berlin, and Dr. M. von Gruber, Munich, on the problem of nutrition were probably the outstanding medical contributions.

NITROGEN IN NUTRITION

The theme of Dr. Rubner's paper was "The Physiologic Importance of Nitrogen in the Nutrition of Animals and Man," a question on which the exigencies of the World War fixed our attention. Nitrogen is the basis of protein, an absolute essential for the repair and growth of tissues and for the maintenance of metabolism and heat production. The body is incapable of storing any great reserve except by improving cell nutrition. There is no direct relation between protein intake and work output. In all animals and in man the minimal utilization of nitrogen represents only 5 per cent. of the total calories during metabolism at rest, whereas the remaining 95 per cent. may be furnished by proteins, fats or carbohydrates, depending on individual preference. The actual nitrogen requirement of man is only 0.04 gm. per kilogram per day. Any losses resulting from catabolism must be made up by the intake of protein. But this cannot be accomplished with all proteins. Animal proteins usually constitute an excellent replacement, but there are great variations among the vegetable proteins. The proteins may be replaced by the ingestion of their elements (Bausteine), and often by a combination of two or more inferior food materials. Even though the protein intake is fully one fourth less than the minimal requirement, provided the intake of a sufficient quantity of nitrogen-free food is maintained, the cellular elements of our body will be reduced by one fourth only after more than 1,000 days. Protein represents the cellular elements, and fat, the reserve substance. In obese subjects the protein utilization during fasting may be reduced to 6 per cent. of the total calories; in extremely lean subjects the cellular elements would be destroyed at a rate that would constitute actual protein disintegration. Obese persons fare better on small protein intake than do lean persons. If more than the minimal requirement of protein is ingested during a period of transitory deficiency of total calories, there is no loss of cell protein. When the cells have lost about 50 per cent. of their protein, life becomes extinct. More than 60 per cent. of protein has no purpose in anabolism, but the lower the protein content of the cells the greater the percentage of protein utilization. The practical experience of several nations comprising a total population of approximately 500,000,000 has yielded an index of the minimal protein requirement of a healthy normal person. There is very little variation in the caloric and protein requirements of the various races, but in Germany today the available quantity of food is well below the average of other nations.

The Food Supply of Germany

Dr. M. von Gruber pointed out that with the present shortage of foods, several millions of Germans are doomed to die. There is no possibility of extensive emigration, and the urban population cannot be saved from its fate by means of unemployment allowances. Although Germany manages to feed her people to some extent, this is made possible only by importation of foods for the payment of which the necessary resources will not be forthcoming much longer. Credit will not be given to us over any extended period, and then Germany must depend on the products of its own soil. The chief problem of society today is to feed the population on home products. With proper utilization of the soil, this is not impossible. With a daily per capita requirement of 2,600 calories, Germany needs, in addition to a fixed amount of protein, a total of 56.62 billions of calories a year for a population of approximately 60,000,000. Before the war, 217 billions were produced; and even now, after the loss of large agricultural territories, 171 billions can be won from the soil for man and animals. The domestic animals are not only producers, but they are actually greedy and dangerous competitors. How many calories can be safely allotted to animals? The horses, absolutely indispensable for productive labor, will take 26 billions of calories, leaving 145 billions for human food and feeding purposes. Eggs, milk and meat represent only a small return of the calories utilized, and these can furnish only 29 per cent. of our total food requirements; 71 per cent. must be derived from vegetable foods. It will be many years before the meat consumption can reach the same proportion as before the war, and Germany cannot afford to succumb to the temptation of feeding to animals food that is fit for human consumption because of the high returns from animal products. Compulsion will not avail, however, but the producers must be brought to make slight sacrifices for the common good through enlightenment. If greater production is to be expected from the farmer, then the consumer must be more moderate. Certainly the latter should not demand greater quantities of beer, especially not with a high alcohol content. The use of barley for brewing is more economical than feeding it to animals, but its use in the form of barley flour for human consumption is far more economical than either. More and cleaner cereals and less milling are demanded.

Berlin School Physicians

The number of school physicians in Berlin has gradually increased to fifty, excluding three specialists—one each in otology, ophthalmology and neurology. These physicians are not government officials, but are selected from among the medical practitioners in a given school district for part-

time service. Each physician must look after the children in at least six schools, with an attendance of between four and five thousand pupils. His duties comprise the routine examination of all new entrants into school and special examinations of those about to begin swimming and rowing lessons, and of those seeking employment after school hours. At stated intervals all children are examined for evidence of infectious diseases, and the sanitary arrangements of the schools are inspected. Special examinations are also required of unfit children who are instructed privately at the expense of the state and of children in special classes, such as the feebleminded, stammering, deaf and nearsighted pupils. Then, too, the school physician's duties include certain functions related to the social welfare, such as the examination of children recommended for country life, for the so-called vacation homes, and latterly for the excursions to neutral countries. Special provisions are made for the treatment of the poor children, for instance, by the establishment of dental clinics.

The Housing Crisis

For some years the regional krankenkasse of Berlin, which comprises thousands of members, has followed the useful practice of inspecting the homes of its sick members. The discovery of the deplorable conditions of many homes directed the attention of the government authorities to certain evils and led to efforts of improvement. Under the influence of the war and its immediate sequels, the housing conditions of the working classes have become very much worse. In 1918, a report for which year is the last published, the number of patients living in rooms of less than 6 square meters (64⅗ square feet) in area, and less than 2.5 meters (8⅕ feet) high had greatly increased. Twenty-nine rooms were less than 1.95 meters (6 feet, 5 inches) high. Thirty persons were living in rooms which had no provision for heating, and almost 3,400 were found to be living in rooms which did not furnish the hygienic minimum of 20 cubic meters (706⅔ cubic feet) of air space; in fact, approximately 600 persons had less than half of this requirement. In a model home of the Prussian State Commission on Housing there is this notice: "Every family residence, in which more than two children are domiciled in addition to the parents, should contain at least two heated rooms (living rooms and bedrooms) and a kitchen." The report shows that in 1918, 1.95 per cent. of the male members occupied one room with five others, 0.90 per cent. with six others, and 0.35 per cent. with seven others, as compared with 1.28, 0.79 and 0.24 per cent., respectively, in 1917. Of patients with contagious diseases, 390 occupied the same room with three and four other men, and fifty-seven with five or more men; 2,686 out of 3,656 patients with pulmonary tuberculosis shared sleeping quarters with others. The number of those living in rooms without windows and in damp houses showed a great increase. The records disclose the fact that 1,507 members of the krankenkasse shared a bed with others; 268 of these were tuberculous in families of from six to twelve persons. One family of five members, another of two members and five of one member possessed no bed at all. Many are forced to sleep in dark halls and narrow kitchens because the bedrooms were sublet to tenants. The residents of the smallest homes are compelled to sublet the tiny living room in order to reduce the burden of rent. It has been determined that to every hundred homes of one room there are twenty-four lodgers; in other words, one out of every four families has a lodger. The smallest apartments have the greatest number of occupants, and the most crowded lodgings are discovered in the houses on back lots. In Berlin, the worst conditions are met in the southwest, northwest and central sections, where the narrowest and least desirable houses serve for the homes of the proletariat, mostly in old dilapidated buildings.

Marriages

JOHN EDENS LATTIMORE, Waco, Texas, to Miss Alice Schoolfield Bissell of Atascadero, Calif., September 15.

CHARLES NICKELL WATTS, Fairmont, W. Va., to Miss Zella V. Van Camp of Paden City, W. Va., September 1.

ABRAHAM THEODORE GOLDSTEIN, Syracuse, N. Y., to Miss Harriet J. Geavitt of Utica, N. Y., August 15.

LELAND K. PHIPPS, Franklin, Ind., to Miss Lillian Nordica Tracy of Whiteland, Ind., September 21.

LOUIS NEUWELT, New York, to Miss Dorothy Lambert of Providence, R. I., October 18.

ISAAC JEFFERSON PARKERSON to Miss Annie Smith, both of Cadwell, Ga., October 6.

ISRAEL TRACHTENBERG to Miss Bessie Greenberg, both of New York, October 6.

Deaths

Paul Sorkness ⊕ Fargo, N. D.; University of Minnesota, Minneapolis, 1895; aged 53; at some time president of the North Dakota State Medical Association, and of the State Board of Medical Examiners; a member of the Western Surgical Association; local surgeon of the Northern Pacific and Chicago, Milwaukee and St. Paul railroads; onetime health officer of Fargo and Cass County; died, September 23, from cerebral hemorrhage.

James Wilson McDonald ⊕ Captain, M. C., U. S. Army, Fairmont, W. Va.; Western Reserve University, 1882; aged 59; a specialist in surgery; a member of the American College of Surgeons; at one time superintendent of Fairmont, W. Va., Hospital No. 3; in charge of Evacuation Hospital No. 6, near Verdun, during the war, and since with the American forces in Germany; died at Coblenz, October 7, from septicemia.

Randell Hunt ⊕ Shreveport, La.; Tulane University, New Orleans, 1889; aged 54; a member of the American College of Surgeons; one of the reorganizers of the Shreveport Medical Society and for one term president; at one time a member of the health board and board of education of Shreveport; major, M. C., U. S. Army, and discharged, Dec. 6, 1918; chief surgeon of Shreveport Charity Hospital from 1900-1908; died, October 2, from bronchial asthma and emphysema.

Woodson Moss, Columbia, Mo.; University of Missouri, Columbia, 1874; aged 68; a member and in 1902 president of the Missouri State Medical Association; from 1875 to 1900 demonstrator and professor of anatomy, and from 1900 to 1917 professor of practice of medicine and therapeutics in the University of Missouri; died, October 5.

Charles Kirkland Roys, St. Paul, Minn.; College of Physicians and Surgeons in the City of New York, 1902; aged 44; for many years a medical missionary in China under the Presbyterian Board of Foreign Missions, and superintendent of a hospital at Weishien, Shantung; died in Rochester, Minn., Sept. 23.

Albert L. Peterman, Parker, S. D.; State University of Iowa, Iowa City, 1877; aged 67; local surgeon for the Milwaukee and North Western Railroad; at one time mayor of Parker, and for one term a member of the South Dakota legislature; died in Minneapolis, October 12, from cerebral hemorrhage.

Anna Forrest Rowe, New York; Woman's Medical College of the New York Infirmary for Women and Children, 1880; aged 62; a member of the Medical Society of the State of New York; founder of the Lucretia Mott Dispensary and Infirmary; died in Boston, September 18, from heart disease.

Harriet Isabel Noble, Brooklyn; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 61; for eleven years chief demonstrator of anatomy in her alma mater; a member of the gynecologic staff of the Post-Graduate Hospital; died, October 10.

Emil Carl Fraser Ruppel, Lynn, Mass.; Harvard University Medical School, 1892; aged 61; a member of the Massa-

⊕ Indicates "Fellow" of the American Medical Association.

chusetts Medical Society; for many years a member of the staff of the Lynn Hospital; died, October 10, from pneumonia.

Niles N. Warlick, Jonesboro, Tenn.; Baltimore University School of Medicine, 1885; aged 64; a member of the Tennessee State Medical Association; died, October 2, from injuries received when struck by an automobile.

Edwin J. Batchelder ✠ Minneapolis, Minn.; University of Minnesota, Minneapolis, 1893; aged 54; a specialist in pediatrics; assistant in pediatrics in the medical college of the University of Minnesota; died, September 30.

Robert H. Sutton, Pasadena, Calif.; Eclectic Medical Institute, Cincinnati, Ohio, 1863; aged 78; for more than half a century a practitioner of Shenandoah, Iowa; died, September 17, from cerebral hemorrhage.

William George Ebersole, Cleveland; Western Reserve University, Cleveland, 1897; aged 56; also a dentist; at one time president of the Cleveland and Northern Ohio Dental Societies; died, October 5.

Richard Schlemm, Union Hill, N. J.; Bellevue Hospital Medical College, 1885; aged 55; for many years physician of Hudson County, and first mayor of Union Hill, serving three terms; died, October 3.

Michael Edward Kean ✠ Manchester, N. H.; Dartmouth Medical School, Hanover, N. H., 1889; aged 57; a member of the American College of Surgeons; died, September 22, from cerebral herorrhage.

Andrew Jackson Douthit, Jacksonville, Ala. (license, Alabama, 1881); aged 70; a member of the Medical Association of the State of Alabama; health officer of Jacksonville; died, September 26.

Jacob F. Hill, Nanticoke, Pa.; Jefferson Medical College, Philadelphia, 1885; aged 64; a member of the Board of Health of Nanticoke; died, September 26, from cerebral hemorrhage.

Howard Moorman, Christopher, Ill.; St. Louis College of Physicians and Surgeons, 1906; aged 51; a member of the Illinois State Medical Society; died, October 1, from heart disease.

John Eliott Graham ✠ Little Falls, N. Y.; College of Physicians and Surgeons in the City of New York, 1906; aged 36; city physician of Little Falls since 1913; died, September 25.

Joseph Sharp, Kansas City, Mo.; Kansas City (Mo.) Medical College, 1873; aged 68; at one time professor of materia medica and therapeutics in his alma mater; died, October 4.

Robert Ambrose Holland ✠ Calais, Maine; Medical School of Maine, Brunswick and Portland, 1895; aged 50; died in Winnipeg, Manitoba, September 11, from nephritis.

William H. Short, La Grange, Ind.; University of Michigan, Ann Arbor, 1869; aged 76; a member of the Indiana State Medical Association; died, October 16.

Daniel Jerome O'Brien ✠ Orange, N. J.; Baltimore Medical College, 1904; aged 45; for two terms city physician of Orange; died, October 15, from meningitis.

Charles Ransom Upson ✠ Bristol, Conn.; Long Island College Hospital, Brooklyn, 1870; aged 62; died suddenly in his office, September 21, from heart disease.

Chester Manley Barton, Mittineague, Mass.; University of Vermont, Burlington, 1868; aged 82; a member of the Massachusetts Medical Society; died, October 1.

Humboldt Yokum ✠ Beverly, W. Va.; Jefferson Medical College, 1885; aged 60; president of the Beverly Bank; died, September 29, from cerebral hemorrhage.

Charles Edwin Hill, East Killingly, Conn.; Harvard University, 1879; aged 66; a member of the Connecticut State Medical Society; died, September 25.

William L. McLane, West Union, W. Va.; College of Physicians and Surgeons, Baltimore, 1878; aged 75; died in Clarksburg, W. Va., October 15.

William Pierce Rawlinson, Homer, Texas; Memphis (Tenn.) Hospital Medical College, 1904; aged 44; died, September 15, from typhoid fever.

Edward Lyttleton Parramore, Oakland, Calif.; Kentucky School of Medicine, Louisville, 1889; Jefferson Medical College, 1891; died, October 6.

Clarence H. Wright, Christiansburg, Ohio; Eclectic Medical Institute, Cincinnati, 1876; aged 71; died, September 24.

Warren F. Klein ✠ Lebanon, Pa.; Jefferson Medical College, 1887; aged 59; died suddenly in his office, September 20, from heart disease.

Washington West, Jr., Belleville, Ill.; Washington University Medical School St. Louis, 1897; aged 43; died, October 4, from peritonitis.

John G. Frank, Chicago; Rush Medical College, 1868; Chicago Medical College, 1871; aged 86; died, October 17, from lobar pneumonia.

G. L. Barrett, Godley, Texas; Atlanta (Ga.) Medical College, 1896; aged 48; died at Fort Worth, Texas, July 28, from nephritis.

Everett O. Posey, Woodruff, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1901; aged 42; died suddenly, September 28.

Samuel G. Mengle, Chicago; University of Pennsylvania, Philadelphia, 1869; aged 70; died, October 13, from cerebral hemorrhage.

Francis A. Sauer, Baltimore; College of Physicians and Surgeons, Baltimore, 1874; aged 74; died, October 15, from pneumonia.

Samuel M. Bartlett, Kokomo, Ind.; Physio-Medical College of Indiana, Indianapolis, 1904; aged 56; died suddenly, September 30.

John H. Koons, Waynesboro, Pa.; Jefferson Medical College, 1881; aged 66; died, September 27, from cerebral hemorrhage.

Henry G. Brown, Bosworth, Mo.; American Medical College, St. Louis, 1883; aged 59; died, August 2, from abscess of brain.

John C. Newby, Sheridan, Ind.; Medical College of Indiana, Indianapolis, 1880; aged 72; died, September 30, from heart disease.

Page Floyd Green, Kearns, Colo.; Tulane University, New Orleans, 1906; aged 38; died, October 22, from tuberculosis.

Willett Spurgeon Connors, Boston; Dartmouth Medical School, Hanover, N. H., 1891; aged 51; died, October 9.

Charles M. Arbuthnot, Belleville, Kan.; Jefferson Medical College, 1881; aged 68; also a druggist; died, October 3.

Wilson Henry Hastings, Weston, Mass.; Harvard University Medical School, 1920; aged 25; died, September 5.

William P. Morgan, Rolling Bay, Wash.; University of London, England, 1871; aged 74; died, September 20.

Edward Wilson Dupee ✠ Bridgeport, Conn.; Baltimore Medical College, 1900; aged 48; died, September 29.

Henry M. Brown, Hillsboro, Ohio; Medical College of Ohio, Cincinnati, 1879; aged 61; died, September 29.

Lemuel T. Hall, Potosi, Mo.; St. Louis Medical College, 1866; aged 79; died, August 17, from myocarditis.

John Joseph D'Aquin ✠ New Orleans; Tulane University, New Orleans, 1892; aged 48; died, September 8.

Charles Francis Morse, Brooklyn; Harvard University Medical School, 1889; aged 59; died, October 9.

Austin Kent Hale, Adams, N. Y.; University of Michigan, Ann Arbor, 1874; aged 70; died, September 21.

Morris Leyser Chaim, New York; University of the City of New York, 1879; aged 80; died, October 9.

Robert Edward Harris, Atlantic City, N. J.; Jefferson Medical College, 1906; aged 39; died, October 5.

Schuyler B. Tuthill, Cincinnati; Medical College of Ohio, Cincinnati, 1891; aged 54; died, October 7.

Ernest V. Bailey, Atlanta, Ga.; Atlanta School of Medicine, 1912; aged 38; died, September 20.

David A. Lauck, Mechanicsburg, Pa.; Baltimore University, 1885; aged 64; died, September 24.

George B. Porch ✠ Johnstown, Pa.; Jefferson Medical College, 1871; aged 75; died, August 15.

Orla B. Miles, Salem, Ore.; Willamette University, Salem, Ore., 1905; aged 48; died, June 20.

Duncan McDougall ✠ Haverhill, Mass.; Boston University, 1893; aged 54; died, October 15.

Thomas W. Beeman, Perth, Ont.; Queens University, Kingston, 1878; died, September 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

SUPSALVS NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report declaring Supsalvs (Anglo-French Drug Company) inadmissible to New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

Supsalvs are advertised by the Anglo-French Drug Company as "stable suppositories of '606' (of French manufacture)" with the claim that by the rectal administration of these suppositories the effects of arsphenamine may be obtained. The asserted efficacy of Supsalvs medication is based in part on the claim that for these suppositories an excipient was found which mixes with the cocoa butter base "to form an assimilable emulsion."

"The active principle and the vehicle being bound to one another, the mucous membrane is able to absorb both simultaneously and progressively in the form of an organic emulsion."

As no information was furnished the Council by the Anglo-French Drug Company on the origin or quality of the arsphenamine used in the preparation of Supsalvs or the character of the vehicle which was "bound" to the arsphenamine in such a way as to permit the absorption of this combination in the form of an "organic emulsion," the firm was requested to furnish: (1) Evidence that the arsphenamine used in Supsalvs complies with the N. N. R. standards and that deterioration of it does not occur in the preparation of the suppositories or on keeping. (2) The identity of the ingredients composing the suppository.

The Anglo-French Drug Company did not supply the requested evidence and consequently the Council judged the preparation on the basis of the information received from the company, and that contained in the available advertising and circulars. It found Supsalvs inadmissible to New and Nonofficial Remedies, first because the quality of the medicament contained in the suppositories has not been established, and second because the claimed efficacy of this preparation as a means of securing the effects of arsphenamine lacks substantiating proof.

During the past few years some French physicians have reported favorably on the intrarectal administration of arsphenamine. Boyd and Joseph at Panama published (THE JOURNAL, Aug. 17, 1918, p. 521) an enthusiastic report on intrarectal injection of arsphenamine but did not refer to its use in the form of suppositories. In a comprehensive report, on the "Treatment of Syphilis" (*Quarterly Journal of Medicine*, July, 1917) L. W. Harrison stated that arsphenamine (Salvarsan) in the shape of an enema is definitely less effective than intravenously and that "Neisser and the vast majority of workers can see no value in the rectal method." Schamberg and Hirschler (A Safe and Efficient Intensive Method of Treating Syphilis, *Therapeutic Gazette*, November, 1919, p. 761) have given a rather thorough trial of this method; the results were most disappointing: "A certain or rather uncertain amount of arsphenamine is absorbed into the blood, but the quantity is obviously too small to be at all comparable in its effect with the intravenous administration. Our conclusions are that the rectal administration of arsphenamine or neoarsphenamine is an extremely feeble method of administering these drugs."

The report of the Special Committee on the Manufacture, Biological History and Clinical Administration of Salvarsan and Other Substances of the British National Health Insurance Medical Research Committee contains the following: "The rectal method of administration, either in the form of solution or as suppositories, has been advocated by a few observers mainly for cases in which there is difficulty in the adoption of the intravenous method. The experiments made by Mills at Rochester Row show that three enemata of '606' (0.6 Grm. in each) on successive days failed to produce any effect on the spironemes in the lesions. The general opinion of experienced workers is that the rectal method is ineffective, and in this view the Committee concur."

Correspondence

"THE SEGREGATION OF PNEUMONIA"

To the Editor:—I have read with much interest the article by Dr. Thomas S. Southworth, of New York, as published in THE JOURNAL, Oct. 2, 1920. My attention was particularly attracted by this sentence from this article:

It is not only pathetic but humiliating to realize that it required a devastating experience in our military camps with pneumonia in measles, and with pneumonia in influenza, to force any considerable recognition of the infectiousness of pneumonia.

In this connection it should be said that the dangers of measles and pneumonia in military commands had been well known to the sanitarians of the army for many years, and had been particularly impressed on them by the occurrence of pneumonia among the troops mobilized along the Mexican border in 1916. Coincidently with the appearance of a large number of measles cases during the late fall of 1917, the experienced sanitary inspectors from the office of the Surgeon General noted the failure to isolate properly many types of infectious diseases in hospitals, among these being pneumonia. As a result of reports from these inspectors received in the office of the Surgeon General, a memorandum was issued, Jan. 1, 1918, and sanitary inspectors made special efforts when visiting military stations to determine whether or not the provisions of this memorandum were being carefully complied with. In brief, the memorandum prescribed that an allowance of at least 1,000 cubic feet per patient should be provided in wards or barracks used for treating measles patients; that wires should be arranged across measles wards, and sheets or newspapers hung over these in such a way as to form a screen between each two patients, or that some other suitable screening arrangement should be provided. This was with a view to preventing the spread of pneumonia by droplet infection during coughing. Patients convalescent from measles were to be retained in a hospital or in a well warmed convalescent barrack for at least ten days after the temperature had permanently returned to normal. It was required that medical officers, nurses and male attendants in measles wards should wear gowns, caps and masks, and that nasal discharges and the sputum of patients should be disinfected. Oral cleanliness was to receive special attention. Attendants who had had measles were to be selected, if possible, for duty in measles wards. Floors of wards were to be gone over daily with a cloth wet in disinfectant. Dishes and eating utensils were to be disinfected. Individual drinking cups were to be used. Particular care was to be taken to disinfect thermometers and other utensils as they passed from patient to patient. Wards were to be kept warm. A urinary examination was to be made before discharge from the hospital.

Measles patients developing pneumonia were immediately to be removed from the measles wards and were not to be placed in the same wards with primary lobar pneumonia.

It was stated that pneumonia patients should be treated in wards used exclusively for pneumonia. Ordinary lobar pneumonias and postmeasles and postscarlet fever pneumonias should not be treated in the same wards. At least 1,000 cubic feet of air space per patient should be provided, and all of the precautions referred to in the section on measles

should be carried out, namely, gowns, caps, masks, screens between beds, disinfection of utensils, thermometers, excretions and floors. Convalescent pneumonia patients should use a mild antiseptic mouth wash as long as they remained in a hospital, and should pay special attention to oral hygiene. Special attention should be given to the early detection of empyema.

With the appearance of the influenza epidemic in the fall of 1918, the importance of applying to influenza cases the same precautions formerly prescribed in the case of measles became apparent, and the following memorandum, setting forth such procedure, was issued by the Surgeon General:

WAR DEPARTMENT
Office of the Surgeon General
Washington

Sept. 30, 1918.

MEMORANDUM for all Camp Surgeons, Surgeons of Recruit Depots and Independent Stations, Department Surgeons and Officer in Charge, Air Service Division.

1. The attached report of a sanitary inspector from this office is furnished for your information, as showing, first, the steps taken at one camp to handle a serious situation in a very satisfactory manner and, secondly, the recommendations for further improvement made by an inspector.

2. In epidemics of influenza every effort should be made to avoid overcrowding of the uncomplicated cases with a view to forestalling complications. At least 100 square feet of floor space per man should be provided, *and all the precautions used which are prescribed for measles in memorandum this office, Jan. 1, 1918.*

3. Prior to the development of epidemics of influenza, camp surgeons should consult with the camp commander with a view to laying out an extensive scheme for evacuating barracks and using them for hospital purposes.

4. The camp surgeon should take steps to keep himself informed as to the sanitary situation at the base hospital, and should endeavor to prevent overcrowding of that institution if other buildings or tentage can be obained to shelter the sick.

By direction of the Acting Surgeon General:

D. C. HOWARD,
Colonel, Medical Corps.

Having been engaged in sanitary inspections during a large part of 1917 and 1918, I can heartily endorse the views of Dr. Southworth as to the limited recognition of the infectiousness of pneumonia. It was found to be exceedingly difficult to enforce the provisions referred to in the above-mentioned memorandum, or to impress their importance on the hospital authorities, practically all of whom had been but recently drawn from civil life. It is believed that the memorandum of Jan. 1, 1918, which was so prominently brought to the attention of a great number of civilian practitioners temporarily serving in the army, must ultimately have had a decided influence in disseminating a belief in the infectiousness of pneumonia and the importance of its segregation.

W. P. CHAMBERLAIN, M.D., Washington, D. C.
Colonel, Medical Corps, U. S. Army.

"IRON AND BLOOD REGENERATION"

To the Editor:—In the editorial on "Iron and Blood Regeneration" (THE JOURNAL, Oct. 9, 1920, p. 1004) you mention the work of Whipple, Hooper and Robscheit in that field. These investigators, working on dogs, found that iron given as Blaud's pills had no influence in simple secondary anemias. It seems pertinent to remark that these results are demonstrated only for dogs, and that any attempt to extend their application to human beings is entirely unwarranted. Compare, on the contrary, the recent well-controlled work of Nägeli (*Schweiz. med. Wchnschr.* **50**:661 [July 29] 1920; abstr., THE JOURNAL, Oct. 2, 1920, p. 966), who found in ten cases of anemia with gastric ulcer that benefit was evident when large doses of iron were given, and that the hemoglobin ran up rapidly from 37 to 82 and then to 100 per cent. Alder's results (ibid.) in using Blaud's pills in various anemias confirm its definite usefulness. It does not seem that the work of Whipple et al. can be applied to human beings.

ALVAN L. BARACH, M.D., Boston.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 9-10. Sec. Reg. Bd., Dr. F. J. Stout, Brinkley. Sec. Eclectic Bd., Dr. C. E. Laws, Ft. Smith.

CONNECTICUT: Hartford, Nov. 9-10. Sec. Reg. Bd., Dr. Robert L. Rowley, Hartford.

CONNECTICUT: New Haven, Nov. 9. Sec. Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Bd., Dr. James E. Hair, Bridgeport.

FLORIDA: Gainsville, Dec. 6-7. Sec. Reg. Board, Dr. W. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

LOUISIANA New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 1551 Canal St., New Orleans.

MAINE: Portland, Nov. 9-10. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, Nov. 9-11. Sec., Walter P. Bowers, Room 144, State House, Boston.

NEBRASKA: Lincoln, Nov. 11-12. Sec., Mr. H. H. Antles, Lincoln.

OHIO: Columbus, Dec. 1-3. Sec., H. M. Platter, State House, Columbus.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 16-18. Sec., Dr. Thomas J. Crowe, 617-20 Trust Bldg., Dallas.

GRADUATE COURSES FOR THE TRAINING OF SPECIALISTS

During recent years, considerable study has been given by the Council on Medical Education and Hospitals to the problems of graduate medical education. One of the great needs at the present time is a carefully worked out course representing the minimum standard of training for each specialty. With this end in view the Council has created fifteen committees, each consisting of nine members of national reputation in the specialty represented.

These committees are in anatomy; dermatology and syphilology; internal medicine; obstetrics and gynecology; ophthalmology; orthopedic surgery; otolaryngology; pathology and bacteriology; pediatrics; pharmacology and therapeutics; physiology; psychiatry; public health and hygiene; surgery, and urology. Each committee will be made up of representatives of the section of the American Medical Association and of the national association or associations in that specialty.

It is planned to have each committee outline a minimum course of study which it believes should be pursued by the graduate physician in order to prepare himself in that particular specialty, beginning with the basic training which should be completed in the undergraduate medical school. The committee may recommend forms of recognition by special degree or certificate for physicians who have satisfactorily completed the course, and suggest measures by which the fitness of the individual to practice the particular specialty may be established. The scheme adopted by the ophthalmologists may be suggestive in the formulation of the courses to be recommended in the other specialties. Besides outlining a course of study, the ophthalmologists have established a board to examine the men who have completed the required work. They also are prepared to investigate medical schools, hospitals and private institutions and to prepare lists of those deemed competent to give satisfactory instruction in that specialty.

It is suggested that the course of instruction in each specialty be established on the supposition that the physician is to be a graduate of an acceptable medical college, and that he has completed an internship in an approved hospital or, if the specialty is one of the laboratory branches, shall have taken an extra year of training in the preclinical sciences. It is of vital importance that this year of training in the preclinical sciences be counted as the equivalent of the intern year; i. e., it should count toward the M.D. degree but not necessarily for the license to practice.

Other suggestive items for each committee to consider in the proposed scheme, are:

(*a*) A course of instruction of at least nine months, to be devoted to the desired specialty; the portions of time to be spent in review courses, in advanced study, and in clinical work to be designated.

(*b*) An additional year's internship in a special hospital in which the work is devoted to the chosen specialty; any equivalents for such hospital work to be outlined by the committee.

(*c*) Other regulations with which the physician shall comply to be eligible for the qualifying certificate to be granted on satisfactory completion of the course.

(*d*) Recommendations in regard to requirements for a higher degree and suggestions as to what degree shall be granted.

(*e*) Specifications in regard to final examinations and to the establishing of a board of examiners in each particular specialty.

(*f*) Recommendations in regard to shorter courses which would have certification but not lead to a degree.

The foregoing outline applies chiefly to the committees dealing with the clinical specialties. For the committees dealing with the laboratory specialties, other points will need to be taken into consideration, depending on whether or not the physician is preparing to teach.

Although each committee consists of nine members, the chairmen are at liberty to confer with as many others as they may deem advisable.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

Since the publication of the list of hospitals furnishing acceptable internships, in the Educational Number of THE JOURNAL, Aug. 7, 1920, and the supplementary list in the issue of September 25, the following institutions have been added:

Middlesex County Hospital, 28 Cresent Street, Middletown, Conn.

St. Francis Hospital, 355 Ridge Avenue, Evanston, Ill.

Pittsburgh Hospital, Frankstown Avenue and Washington Boulevard, Pittsburgh, Pa.

Sacred Heart Hospital, Eighth and Brown Streets, Spokane, Wash.

The State Hospital for Mental Diseases, Howard, R. I., has been admitted to Section II of the list, which includes "State Hospitals and Hospitals for the Insane."

Children's Hospital, Thirteenth and W Streets, N. W., Washington, D. C., and the Episcopal Eye Ear and Throat Hospital, 1147 Fifteenth Street, N. W., Washington, D. C., are approved and classified under "Special Hospitals," Section III of the list.

Connecticut July Examination

Dr. E. C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 13, 1920. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Two candidates were examined, all of whom passed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
New York Homeo. Med. Coll. and Flower Hospital		(1920)	83
Hahnemann Med. Coll. and Hosp., Philadelphia		(1920)	80

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
New York Med. Coll. and Hosp. for Women		(1918)	New York

North Dakota July Examination

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 6-9, 1920. The examination covered 13 subjects and included 104 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1916)	75
Northwestern University		(1920)	81
Rush Medical College		(1920)	76.6, 86.2
Johns Hopkins University		(1919)	75.1
University of Minnesota Medical School		(1920)	79
Queens University		(1919)	78.7
	FAILED		
University of Oklahoma		(1911)	71.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1903)	Minnesota
Rush Medical College		(1919)	Illinois
St. Louis University		(1914)	Missouri
University of Minnesota Medical School		(1914), (1915), (1916), (1917)	Minnesota
University of Nebraska		(1913)	Minnesota

Book Notices

THE MARCHING YEARS. By Norman Bridge, M.D., A.M., LL.D. Cloth. Price, $2.50. Pp. 292. New York: Duffield & Company, 1920.

Among the medical personalities of early days in Chicago the name of Norman Bridge is prominent. Also it appears among those to whom may be credited the development of southern California. Thus, he is well known in the western as well as in the central part of the country. Further, Norman Bridge may be classed among those who have accomplished things. For these reasons many will rejoice that he has written this autobiography. After recounting his boyhood experiences in New England and later in central Illinois, which were those of the ordinary farmer's boy, he tells of the incidents which finally led him to the study of medicine. His medical education was obtained in the University of Michigan, which he entered in 1866, and in the Chicago Medical College, from which he received his medical diploma in 1868. Almost immediately after his graduation he became connected with the teaching faculty of his alma mater. The following year he associated himself with the Woman's Medical College and two years later entered the faculty of Rush, with which he has been closely or indirectly connected since. In 1872 he and Dr. T. D. Fitch published the first volume of the Chicago Medical Register and Directory, which he tells us contained the names of 305 physicians. Later he was instrumental in merging the *Chicago Medical Examiner*, which had been the organ of the Chicago Medical College, and the *Chicago Medical Journal*, the organ of Rush Medical College, into one journal, the *Chicago Medical Journal and Examiner;* he became associate editor with Drs. Byford, Etheridge, Hyde and Hotz—men whose names are intimately connected with the development of medicine in Chicago. In 1882 he visited California, and this proved the turning point in his life. When, a few years later, he became ill with premonitory symptoms of consumption, he concluded to make California his future home, and moved there in 1891. While his first interest was in medicine, he early began to take part in public affairs. He was one of those instrumental in building the new Cook County Hospital, and later the Presbyterian Hospital. In 1881 he accepted appointment as a member of the board of education in Chicago, and in 1886 membership on the election commission, on both of which bodies he served for many years. After moving to California he also held various public offices, among them membership on the board of freeholders, which framed the new charter for Pasadena. For many, the most interesting chapter in the book will be that on secular pursuits. It is rare that a physician so invests his meager capital that it brings such multifold returns as has been the case with Dr. Bridge. In this chapter he tells how it happened, and he gives the rules of commerce which brought him success. They seem very, very simple! He gives intimate details of the development of the Mexican Petroleum Company, and tells how a small investment yielded such rich returns. He does not tell what the returns were, but they are reported to be in seven figures. Nor does he dilate on the generosity with which he already has administered part of this fortune. He describes the founding of the Throop Institute, which has now become the California Institute of Technology. He does not say that he had already contributed $150,000, to which, since his book was written, he has added another $100,000; nor does he mention his contribution of more than $100,000 to Rush Medical College, and many other smaller benefactions. He relates that on account of the peculiar laws in California which prohibit the willing of more than one third of one's fortune to institutions, he established legal residence in Chicago in 1916, and maintains this residence by voting and by spending a portion of his time each year in that city. Chapters are devoted to Dr. Bridge's numerous contributions to medical and philosophical literature and to his interesting court experiences and political strategy. Of the last mentioned, one of the most interesting is the account of the Cook County Hospital examination in which Dr. Frank Billings received first place and in which for the first time women were successful. This anecdote and

numerous others give the book an appeal which makes it more than a matter of personal interest. Among other subjects, Dr. Bridge discusses and devotes chapters to music, charity, authorship, clubs, societies and friendships. The book is one that will be read with pleasure by all who know the author; it is instructive and interesting.

Diätetik der Magen- und Darmkrankheiten. Von Prof. Dr. I. Boas. Nebst einem Anhang: Diätetik vor und nach Operationen am Magen-Darmkanal. Von Prof. Dr. G. Kelling. Paper. Price, 85 cents. Pp. 216. Leipzig: George Thieme, 1920.

This is an instructive guide for the dietetic management of gastro-intestinal diseases. A chapter on general dietetic requirements emphasizes the importance of every physician's knowing not only the value of particular foods, but also the manner of their preparation for the invalid. The patient's desires and taste should be frequently a guide as to which foods are best suited to his individual case, especially in the gastro-intestinal conditions in psychoneuroses. The chapters on hyperacidity, reflex and organic, on duodenal and gastric ulcer, and on obstipation, colitis and chronic diarrheas are complete and well worth perusal by the practitioner. In several chapters on the dietetic management of preoperative and postoperative conditions, Kelling of Dresden lays particular stress on preparing the patient by dietetic measures, in order that his resistance may be at a maximum before every operation. War conditions have shown that protein loss is not necessarily associated with a lowered resistance to infection. There is a chapter on the preparation of a diabetic patient for operation. No mention is made of the Allen management. In fact, starvation days were not found necessary.

Studies in Neurology. By Henry Head, M.D., F.R.S., in Conjunction with, W. H. R. Rivers, M.D., F.R.S., Gordon Holmes, M.D., G.M.G., James Sherren, F.R.C.S., Theodore Thompson, M.D., and George Riddoch, M.D. Two Volumes. Cloth. Price, $17. Pp. 862, with 182 illustrations. New York: Oxford University Press, 1920.

These volumes consist mainly of a republication of a number of papers published by Head and his co-workers in *Brain* over a period extending from 1905 to 1918. No material change has been made in their arrangement. Each paper contained an account of the methods employed in testing sensation. These have been omitted, and a fresh chapter in which they have been combined has been added. An introduction and an epilogue dealing with the common aims which underlie these various researches have been added. Finally, some of the most serious criticisms of their researches have been considered in an appendix. The first volume consists of three papers on the peripheral nervous system. The profound studies herein described resulted in a new conception of the physiology of sensation. They led Head, Rivers and Sherren to conclude that the sensory mechanism in the peripheral nerves consists of three systems: deep sensibility, protopathic sensibility and epicritic sensibility. In addition to the sensory studies there are found some illuminating observations on changes in the skin and nails, and comments on paralysis, emphasizing the effect of supplementary motility. In the second volume the grouping of afferent impulses is described. After showing that afferent impulses which reach the central nervous system by way of the peripheral nerves undergo rearrangement within the spinal cord, so that each tract is devoted to the conduction of one of the specific impulses, such as pain, the authors attempt to trace the course of the impulses upward. They show that painful, thermal and tactile impulses ultimately pass from the point of entry to the opposite side of the spinal cord, having undergone recombination on the side into which they enter. A lamellar arrangement of fibers as they course upward is pointed out. Continuing their researches to the brain, there are exhaustive studies on the grouping of afferent impulses in the brain stem, and sensory disturbances from lesions of the optic thalami and the cerebral cortex. These volumes will be of interest to the physiologist and all clinicians. They permit a comprehensive view of the newer conceptions of the physiology of sensation, and should tend to stimulate further interest in this subject, which has so great a bearing on clinical neurology. The clinician will be especially edified by the full case reports and numerous illustrations.

Medicolegal

Hysterical Blindness from Operation Compensable

(Weber v. George Haiss Mfg. Co. et al. (N. Y.), 181 N. Y. Supp. 140)

The Supreme Court of New York, Appellate Division, Third Department, in affirming an award under the workmen's compensation law, says that the claimant sustained an injury to his right eye, which made its removal by operation necessary. Simultaneously with the operation, the sight of the left eye became affected, and was almost wholly lost. No injury appeared to have been done to the eyeball, the optic nerve or any physical thing constituting a part of the organ of sight. Yet distinguished physicians were agreed that the claimant was not simulating blindness, and in fact did not see. A neurologist said that the claimant could not see at all, and diagnosed the trouble as "traumatic neurosis" or "hysterical blindness," stating that "this psychic shock, the surgical operation which produced the shock, was the primary means of producing that hysterical blindness." It was not important that the claimant had an uninjured physical equipment with which he should, but could not, see. After all, a man sees with his brain, not with his eyeball or his optic nerve, and if an operation performed on an eye so affects the mind, the nerves or even the imagination that a man genuinely loses vision with his other eye, then the faculty of sight has been more directly attacked than when assailed through the mechanical contrivances by which it functions. The workmen's compensation law of New York provides that every employer shall pay or provide compensation for the disability or death of his employee resulting from an accidental personal injury. All the consequential results of an accidental injury are thus made compensable. The operation of this section is not in the least limited by the provision which merely makes certain that conditions consequent on disease following accidental injury shall be regarded as themselves the consequence of such injury. This was perhaps a necessary provision, for the reason that, strictly speaking, disease is never caused by injury, but is merely provided with opportunity thereby. If an injury requires an operation, and the operation deranges the mind or nerves, clearly disabilities resulting from the derangement result from the injury. In negligence cases involving railroad disaster, nothing is more common than recoveries for nervous and hysterical disorders due to shock. If a neurasthenic condition consequent on accidental injury is compensable, as it clearly is, then surely a disorder, such as hysterical blindness, which forms a constituent part of that condition, must also be compensable.

Care Required of Private Hospitals

(Davis v. Springfield Hospital (Mo.), 218 S. W. R. 696)

The Springfield (Mo.) Court of Appeals says that the plaintiff's former husband was a pay patient at the defendant hospital, which was not claimed to have been a charitable institution, but was conducted on the theory of charging and receiving adequate compensation for the services rendered. That it was liable for its negligent acts was not controverted. Two trials were had of this case, the second one being on the theory that this patient, being delirious and unconscious of his acts and danger, left his room on the third floor of the hospital, between 12 and 1 o'clock at night, in the absence of any nurse or attendant, and went into the hallway, opened a door leading to a fire escape, and fell down the steps of the fire escape to the ground, receiving injuries from which he died a few hours later. A judgment for damages, for an amount not stated by the court, was rendered in favor of the plaintiff, and is affirmed. But it was with some hesitation that the court came to the conclusion that there were sufficient facts to carry to the jury the question that the defendant could and should have anticipated that the patient was likely to receive injuries unless more closely watched and guarded. There was no question but that his mental condition and conduct were such as reasonably to warn the hospital attendants that unless watched he was likely at any time to leave

his bed and wander through the halls and open doors. The evidence was that the door to the fire escape was closed, and perhaps locked, but with the key left in the door. The patient had also shown a tendency to want to leave the building to get morphin or cocain. He would naturally come to this door in wandering through the hall, and finding the key therein open it to the fire escape, or he might have fallen down the inside stairs. The court thinks that the defendant's negligence was a jury question, and, having been properly submitted, the verdict was binding on this court.

There is no question as to the law being that the defendant was required to use reasonable care and diligence not only in treating this patient for his illness, but also in safeguarding him from the danger due to his mental incapacity to care for himself. The degree of care and diligence required is measured both by the mental incapacity of the patient and the danger which the surroundings indicate may befall such a patient in view of any peculiar mental traits exhibited by the patient.

While all the authorities hold that a private hospital owes to its patients such reasonable care and attention for their safety as their known mental and physical condition reasonably requires, yet this is always limited by the unbending rule that no one is required to guard against or take extreme measures to avert that which under the circumstances is not likely to happen, or, more accurately, which a reasonable person under the circumstances would not anticipate as likely to happen. The law requires only reasonable care—that care to avert dangers which a reasonable man would take under the circumstances as they exist—and no man does or is required to take measures to avert a danger which the circumstances as known to him do not suggest as reasonably likely to happen. These circumstances include the patient's mental condition and aberrations, and what he is likely to do by reason thereof, the degree of his mental and physical helplessness, and the dangers which his surroundings afford.

Insufficient Allegation as to Examination Before Prescribing Narcotic

(Kansas City v. Smith (Mo.), 218 S. W. R. 943)

The Kansas City (Mo.) Court of Appeals, in reversing a judgment of conviction of the defendant, says that it was charged in the information that the defendant, a duly licensed physician, did "unlawfully issue a prescription to one Arthur Hines for a narcotic, habit-forming drug, to wit, morphine, without first making a physical examination of said Arthur Hines for disease, injury or deformity—all in violation of Sections 1 and 6 of Ordinance No. 22373 of Kansas City, Mo., approved March 26, 1915." Section 1 of the ordinance thus alleged to have been violated forbids the sale of the drug mentioned by pharmacists, druggists, or other persons "except upon the written prescription of a duly licensed physician," etc., provided that the provisions of the ordinance shall not apply to the sale of certain proprietary remedies sold in good faith, etc. There is nothing in the section directed against a physician forbidding him from issuing a prescription. Except as quoted, no mention is made of a physician at all. The section of the ordinance pleaded does not justify the conviction. Section 6 referred to only fixes the penalty. In Section 2 of the ordinance, which section was not pleaded, there is a provision that it shall be unlawful for any duly licensed physician, veterinarian or dentist to issue any such prescription, "except after a physical examination of the person for the treatment of disease, injury or deformity." But even under that section the offense seems not to have been sufficiently alleged. The charge was that the defendant made "a physical examination of said Arthur Hines for disease, injury or deformity," whereas the ordinance is that he must have made the examination "for the treatment of disease," etc. An examination to ascertain whether there is a disease is not the same thing as examining for the purpose of treating such disease. In failing to state the purpose of such examination, as it is set out in the ordinance, the offense was not described. The treatment for disease, etc., formed an exception which went, in part, to make up the offense, and it should have been pleaded.

Society Proceedings

COMING MEETINGS

District of Columbia, Medical Society of, Washington, Dec. 1.
Hawaii, Medical Society of, Honolulu, Nov. 18-20.
Medical Association of the Southwest, Wichita, Kan., Nov. 22-24.
Porto Rico, Medical Association of, Ponce, Dec. 13-14.
Radiological Society of North America, Chicago, Dec. 16-17.
Southern Medical Association, Louisville, Ky., Nov. 15-18.
Southern Minnesota Medical Association, Mankato, Nov. 29-30.
Southern Surgical Association, Hot Springs, Va., Dec. 14-16.
Western Surgical Association, Los Angeles, Calif., Dec. 3-4.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at South Bend, Sept. 23-24, 1920

The President, Dr. Charles H. McCully, Logansport, in the Chair

SYMPOSIUM ON RENAL TUBERCULOSIS

Pathology

Dr. Virgil Moon, Indianapolis: Tuberculous infection may reach the kidney by direct infection from a neighboring focus; by way of the lymphatic system, which is of infrequent occurrence since the drainage is from, not toward, the kidneys; rarely by infection ascending from the bladder, and most commonly by the blood stream. In caseous tuberculosis of the kidney, the ureter and lower urinary tract are regularly involved.

Early Recognition and Management

Dr. Frank B. Wynn, Indianapolis: Early diagnosis, the application of proper treatment—rest and hygienic, dietetic and therapeutic measures—may arrest or cure the disease, but this should never supplant surgery when there is proved unilateral tuberculosis of the kidney, or when there is evidence of retrogressive changes.

Differential Diagnosis

Dr. H. O. Mertz, Indianapolis: Tubercle bacilli in the urine mean tuberculosis, but their absence does not eliminate the disease. Cystoscopy and ureteral catheterization are of value in the obscure case, and necessary in every case coming to surgery. Repeated examinations are necessary in many cases, and a differential diagnosis may take many weeks, occasionally months, or may rest on a justified surgical exploration.

Roentgen-Ray Diagnosis

Dr. R. C. Beeler, Indianapolis: A series of films of different densities should be made of the entire urinary tract in all suspected cases. One out of five cases will show definite roentgenographic signs, and by means of the roentgen ray a diagnosis may be made when all other methods have failed. In early inflammatory infection of the kidneys, pyeloscopy is of value.

Surgical Treatment

Dr. H. G. Hamer, Indianapolis: In unilateral renal tuberculosis, early nephrectomy is indicated and affords the only assurance of cure. When both kidneys are infected, nephrectomy is contraindicated, unless one kidney is practically destroyed and the other still has good functional capacity. Under tuberculin treatment and proper dietetic, climatic and hygienic management, many patients will be improved, but are likely to have recurrences later on. Supposed cures are generally an expression of the phenomenon of excluded kidney. Seventy-five per cent. of cases of unilateral renal tuberculosis are amenable to cure by nephrectomy.

DISCUSSION

Dr. Charles Terry, South Bend: I believe in early operation in tuberculosis of the kidney when surgery is indicated. I see no objection to exploring the kidney.

Dr. Charles Beall, Fort Wayne: When the tuberculous process is advanced and unilateral, the kidney should be removed. This is, however, not the only cure, but is certainly gives the patient the best chance to get rid of his tuberculosis.

After the kidney is removed, however, the patient needs further treatment before he is well.

DR. A. C. KIMBERLIN, Indianapolis: The importance of early clinical history, and very thorough and repeated physical examinations that lead up to the lesions evidenced in the kidney itself, should be emphasized. Climatic and hygienic treatment is important, and tuberculin treatment is of value if you know how to use it.

DR. P. E. MCCOWN, Indianapolis: With an acid urine in which bacteria are not found, repeated stains should be made day after day for three or four weeks. Many times tubercle bacilli appear in the tenth or fifteenth stain.

DR. BERNHARD ERDMAN, Indianapolis: One hour before making a cystoscopic examination, I insert into the bowel, in a rectal suppository, 1 grain of powdered extract of opium and ⅛ grain of powdered extract of belladonna. After thirty minutes I instil into the bladder 1 ounce of a solution containing 30 grains of antipyrin. It is surprising with what comfort cystoscopy may then be performed.

DR. H. K. BONN, Indianapolis: In cases of bilateral inoperable renal tuberculosis, Rosenkranz suggested extraperitoneal dissection of the ureter, ligating the bladder end of the ureter, conducting the renal end through the abdominal wall, and implanting it subcutaneously below the level of the umbilicus.

Association of Free Hydrochloric Acid and Gastric Motility in Gastric Diseases

DR. IVAN C. BRENNER, Winchester: In cases of chronic duodenal ulcer I found hypermotility with hypochlorhydria or achylia gastrica; in chronic gastric ulcer, hypermotility with hypochlorhydria in 80 per cent. of the cases, and in acute ulcer of the stomach hypomotility with hyperchlorhydria in 60 per cent. of the cases; all of which indicates that the increase or decrease of free hydrochloric acid in chronic ulcer has nothing to do with the gastric motility. In cases of gastritis chronica, regardless of cause, I found hyperchlorhydria with hypomotility, and hypochlorhydria with hypermotility. I could not depend on the symptoms of hunger pain, food relief, hypersecretion and hyperchlorhydria as laid down in textbooks as the cardinal symptoms of chronic duodenal ulcer. I also found that most cases of burning and gnawing sensation in the stomach were either achylia or hypochlorhydria rather than hyperchlorhydria only.

DISCUSSION

DR. FRANK JETT, Terre Haute: In the diagnosis of stomach ulcer, stomach carcinoma, or duodenal ulcer the history is most important, outside of radiography. By elimination, a diagnosis of gallbladder trouble can often be made. Gastric analysis has very little place in scientific diagnosis.

DR. H. O. PANTZER, Indianapolis: It is my belief that in a vast majority of these cases the history will show that the trouble began the day the patient was born, and is due to some gross irregularity of the stomach.

DR. ALFRED S. JAEGER, Indianapolis: Surgery simply relieves the abdominal irregularities and gives Nature a chance to bring into force its recuperative powers; but surgery alone does not cure. The ultimate cure is medical, not surgical.

Rôle of Roentgen Ray in Diagnosis of Surgical Abdomen

DR. B. R. KIRKLIN, Muncie: It is my opinion that by the skilful use of roentgen-ray methods alone it is possible to diagnose from 80 to 95 per cent. of all pathologic gallbladders and appendixes. The most important factor in this work is the correct interpretation of the various shadows on the plates and screens.

Pelvic Lymphangitis

DR. CARL HABICH, Indianapolis: The severity of this type of pelvic infection, which does not include those following labor, abortion or instrumentation, depends entirely on the amount of cervical invasion, the virulence of the infection and the resistance of the patient. The functional changes in menstruation have a direct relationship to the amount of ovarian involvement. The recognition of chronic endocervicitis as a primary focus of infection, and its extension as an ascending lymphangitis, places it on a rational parallel with any other infectious process. If further investigation of this subject should prove that the extension of infection from the cervix is by way of the lymphatics, it would be a happy solution of some of the unexplained phenomena of pelvic infections and the associated menstrual disturbances.

DISCUSSION

DR. WALTER J. BAKER, South Bend: I have searched the literature and cannot find any record of any case of leukorrhea being improved by curettage unless there was positive congestion. On the other hand, the condition is made worse, new channels of infection are laid open, and the patient is harmed by the procedure. Treatment should extent to the external os, not beyond it.

DR. E. E. PADGETT, Indianapolis: I agree with Dr. Baker about curettage for leukorrhea. I have not curetted for a long time, except to remove particles from an incomplete operation. The leukorrhea comes from the cervix, and one cannot cure it by curettement of the uterine canal.

Syphilis as a Factor in Deafness

DR. C. H. MCCASKY, Indianapolis: Syphilis is a much more frequent cause of deafness than is commonly supposed. Congenital or hereditary syphilitic deafness usually occurs in early life, while acquired syphilitic deafness is, as a rule, found in adult life. It attacks both the receptive and perceptive apparatus, but the latter much more frequently. It is usually bilateral in destruction of hearing. The diagnosis depends largely on the case history and the laboratory findings.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Seventieth Annual Session, held at Lexington, Sept. 27-30, 1920

The President, DR. W. W. ANDERSON, Newport, in the Chair

End-Results in Surgery of Gastric and Duodenal Ulcer

DR. LOUIS FRANK, Louisville: Gastric and duodenal ulcer are distinctly amenable to surgical treatment and are best handled by it. In from 75 to 85 per cent. the results of surgical treatment are quite satisfactory to the patient. Many of the failures to relieve completely are due to delay in instituting surgical interference. Failures are also due to incorrect diagnosis. In the presence of ulcer, lack of cure may also be the result of an imperfect technic or of an incorrect type of operation, thereby leaving the way open to postoperative complications or sequels such as jejunal ulcer or carcinomatous engraftment on the ulcer.

Radium Treatment of Cancer

DR. WILLIAM J. YOUNG, Louisville: In inoperable carcinoma of the uterus, radium has produced startling results which are for the most part temporary. When the cervix is involved and a foul-smelling discharge is a constant source of annoyance to the patient and those coming in contact with her, radium treatment will clarify the situation and relieve the pain that is usually present. In carcinoma of the prostate, radium is used to reenforce surgery, should it be deemed wise to operate; and if considered inoperable, radium is the one means by which the condition may be reached directly.

Treatment of Skin Tumors

DR. M. L. RAVITCH, Louisville: Radiation in the treatment of malignant tumors may be carried out either with radium or the roentgen ray. The latter is still the method of choice when it can be employed, since it will accomplish everything that radium can accomplish. Radium, on the other hand, can be employed when it is impossible to get a good exposure with the roentgen ray, as, for example, in cavities of the body and in fistulous tracts. The great majority of operators are using the roentgen ray for the treatment of skin malignancies. It is essential that proper apparatus be used. The results of roentgen-ray treatment in nonmetastasized epithelioma are amazingly good. In nearly 100 per cent. of cases a permanent cure is obtained. Involvement of the lymph glands means a decided drop in the percentage of cures, while in sarcomas the results again are far from what we

obtain with epitheliomas. Lipomas and myomas are best treated by complete surgical excision. The tubercular nodules and tumors of lupus vulgaris and tuberculosis verrucosa cutis may be reduced by chemical or electrical cauterization, combined with radiation. Sometimes the use of the roentgen ray in these cases produces considerable irritation, and the ultraviolet ray may be found more suitable.

Malignancy of the Face and Jaws

DR. FRANK T. FORT, Louisville: Of the various types of malignancy involving the face and jaws, the basal cell tumor is the least malignant and may exist for many years without appreciable change. A frozen section should be made in every case in which an anesthetic is required, so that the surgeon may be guided by the microscopic findings as to whether little or much tissue should be sacrificed. In the small basal cell type of epithelioma of the face, some form of paste, the knife, cautery, radium or the roentgen ray is all that is necessary for its destruction. In malignant epulis, which is usually one of the least of the malignancies, in addition to enucleation of the main growth it is always necessary to chisel away diseased portions of the alveolar process. In cancer of the tongue, which is one of the most malignant types involving the mouth, metastases occur quite early, and operation with hope for a cure is best performed in two stages, that is, removing all the glands of the neck immediately connected with the lymphatics of the tongue, and excising the tongue.

Diagnosis of Syphilis

DR. HERBERT BRONNER, Louisville: The provocative Wassermann test is a possible means of early diagnosis. In some cases in which the blood has been decidedly negative, a positive reaction was obtained after the provocative injection. If the blood is negative after twenty-four hours, the blood should again be taken at forty-eight hour intervals for several days and tested. Laboratory procedures, including the dark field illuminator or the Wassermann test, will make or confirm the diagnosis of syphilis in the primary stage in more than 90 per cent. of the cases.

Bacillus Coli Infection of Prostate and Seminal Vesicles

DR. CLAUDE G. HOFFMAN, Louisville: Of five cases of colon bacillus prostatitis coming under my observation, the seminal vesicles were affected in four; in one there was an accompanying bilateral epididymitis. In all of the cases the infection was acute in type and *B. coli* was the predominating organism, as shown by bacteriologic and cultural methods of investigation. In only one case was there a history of antecedent venereal disease. Involvement of the prostate and seminal vesicles from mixed infection following improperly treated gonorrheal urethritis is quite common. Acute prostatitis, epididymitis and seminal vesiculitis due to *B. coli* invasion must be rather rare, as few such cases have been recorded in available literature. Chronic cases are common, but these are usually due to mixed infection.

Lessons From the Study of Three Hundred Diphtheria Deaths

DR. L. H. SOUTH, Louisville: Experience and statistics have proved that if antitoxin is given the first day of the disease in large enough doses there will be no deaths. The mortality curve increases in direct proportion to the duration of the disease before its use. The initial dose of antitoxin used in the 300 cases in which death occurred in Kentucky, and the interval between doses, varied extremely. The majority of the physicians reporting favored an initial dose of 10,000 (43 per cent.); 20,000 units were given by 14 per cent., and 20 per cent. gave only 5,000 units, the majority of the latter being city physicians, by whom large doses easily could have been procured. Four per cent. gave the obsolete dose of 3,000, virtually the same as giving none at all. In no instance was an intravenous dose given, although this method of treatment was urged in severe cases in 1911.

Significance of Acidosis in Children

DR. T. M. MARKS, Lexington: Acetonuria does not necessarily mean acetone body acidosis. True acidosis, the most common type in children, shows no acetonuria in the early stages, and never enough to be of clinical importance. Hyperpnea with nervous symptoms and no cyanosis in an infant means acidosis. Acidosis is the most common disorder to be overlooked in treatment of children, many deaths resulting because many still hold that if there is no acetonuria there is no acidosis. It is deemed inadvisable to treat acetone body acidosis with alkalis, while in true acidosis alkali is indicated. Acidosis introduces the necessity for rapid and energetic specialized treatment; but when it is overcome, the underlying condition is still to be recognized and combated.

Indications for Removal of Faucial Tonsils

DR. S. SHELTON WATKINS, Louisville: Before the tonsils are removed as the probable cause of various disorders due to focal infections, other foci should be ruled out. The most important ones are adenoids, accessory sinuses, teeth, the prostate, the seminal vesicles, the gallbladder, the appendix and cecum, and a dilated, sluggish colon. Extraction of important teeth should be performed last of all, since it is difficult to replace them satisfactorily with artificial teeth. The percentage of diseased teeth acting as foci of infection is probably much smaller than is generally supposed. Of course, when they are causing serious trouble, they should be removed; but too many men assume that they are doing so merely because they are diseased, and do not make an effort first to treat more likely foci. Radical operation on any of the foci should be discouraged until there is little doubt of the need for them, but not postponed when needed just because they are radical.

End-Results of Surgery of Kidney

DR. JOHN R. WATHEN, Louisville: I have performed eleven nephrectomies for pyonephrosis combined with stones. Four deaths occurred soon after the operations, either from shock or from uremia. In eighteen cases for stone in the kidneys and ureters, six operations were for stones in the ureter low down, and all the patients recovered; of the twelve patients operated on for stones in the kidney, two died, one from internal hemorrhage through the ureter and bladder, due to faulty closure of the nephrotomy incision, and the other from anuria. The patients who made operative recoveries have remained well, and only two returned with pain in the other kidney. My youngest patient operated on for nephrolithiasis was a boy 8 years old, and my oldest patient was a woman, aged 67 years.

Local Versus General Anesthesia in Tonsillectomy

DR. R. H. COWLEY, Berea: A local anesthetic is safer, pleasanter and in every way preferable to a general anesthetic, except in young children and very nervous adults. One should perfect his technic in both methods so that he can practically leave the choice of method to the patient.

Diagnosis and Management of Hyperthyroidism

DR. C. W. DOWDEN, Louisville: An increase of the basal metabolic rate of 10 points or more above the normal means hyperthyroidism if pernicious anemia, leukemia, polycythemia, etc., are excluded. It should also be remembered that menstruation frequently causes a slight rise, even 10 points or more, and that nervous persons will show a decided rise on one day, and the following day, after having been accustomed to the apparatus and the surroundings, be perfectly normal. Determination of the basal metabolic rate is the only means by which we can differentiate the borderline cases. The epinephrin test or the sugar tolerance test are not reliable guides.

Control of the Milk Supply

DR. J. D. MAGUIRE, Lexington: The first essential for the control of the milk supply is that the health department be thoroughly equipped with diligent inspectors, sufficient money, a competent bacteriologist, and a complete, up-to-date score card and grade card system for records and references. Milk must be graded just as other commodities are graded. The public should know the food value of milk as well as its bacterial content.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

October, 1920, **4**, No. 4

Static and Kinetic Systems of Motility. J. R. Hunt, New York.—p. 353.
*Acquired Double Athetosis (Dystonia Lenticularis). W. G. Spiller, Philadelphia.—p. 370.
*Herniation of Brain. A. Meyer, Baltimore.—p. 387.
*Histopathology of "Pseudotumor Cerebri." P. Bailey, Chicago.—p. 401.
*Dystonia Lenticularis (Dystonia Musculorum Deformans). E. W. Taylor, Boston.—p. 417.
Chronicity in Lethargic Encephalitis. I. Abrahamson, New York.—p. 428.

Dystonia Lenticularis.—Spiller reports a case of the myoclonic form of lethargic encephalitis with intense muscular contractions of the myoclonic type in various parts of the body which terminated fatally. He found in microscopic sections a pronounced cellular infiltration of the region of the basal ganglions, but not confined to them. It occurred diffusely in the basal part of the temporal lobe. The intense perivascular cellular infiltration of the region of the aqueduct of Sylvius, so common in the usual form of lethargic encephalitis, did not occur in this case.

Herniation of Brain.—Cases illustrating various types of herniation under the falx and under the tentorium and into the foramen magnum are recorded by Meyer. They give an interesting quasi-experimental picture of the topography and at least in two instances collateral consequences of possible importance among the so-called distant symptoms of brain tumor. One case of glioma of the left opercular region, shows, besides a moderate cerebellar wedging into the foramen magnum, a characteristic sagittal "tentorial line" on the left uncus, not to be taken for a sulcus semi-annularis Retzius. A glioma of the anterior and middle hindbrain segment, showed similar tentorial lines due to slight hydrocephalus. A most extensive prolapsing glioma of the left temporal lobe with death in coma, showed a frontal herniation under the falx and a marked subtentorial herniation of the uncus. A cancer metastasis with a cyst in front of the paracentral lobule lead to herniation of the fornicate gyrus under the falx and subtentorial herniation of part of the uncus and of both subicula, with a striking impingement on the calcarine branch of the posterior cerebral artery and collapse of the corresponding part of the occipitotemporal cortex; hence providing a foundation for hemianopsia. An aneurysm of the circle of Willis just in front of the optic tract and chiasma impinged on the circulation of the right hemisphere, with swelling of the right hemisphere without actual softening or infarction, but marked herniation of the subiculum; left hemiplegia and hemianesthesia, three days later coma, and nine days later death. An hemorrhagic cancer metastasis in the right postcentral gyrus led to subtentorial herniation and to wedging of the cerebellum. An unusually great subtentorial herniation occurred in a case with a cystic glioma extending from the right frontal lobe to the right occipital lobe, without, however, occluding the calcarine artery. Wedging of the cerebellum was added as a secondary consequence. A cancer metastasis in the inferior semilunar lobule of the cerebellar hemisphere led to cerebellar herniation into the foramen magnum and to an interesting supratentorial distention of the region of the splenium, with death eight days after a subtemporal decompression. Moderate wedging of the cerebellum in a child of 10 months, with convulsions and brain swelling, but no focal lesion, led to a case of marked wedging of the cerebellum, distention of the hindbrain and forebrain ventricle; severe frontal headache, lumbar puncture, followed by aggravation and disturbed vision and death in three weeks. A suspicion that herniations of the subiculum might be responsible for the sclerosis of the cornu ammonis in epilepsy through the effects of transitory subtentorial herniation is not, so far, corroborated by this series of cases.

Meningo-Encephalitis Simulating Tumor.—A case simulating a tumor of the left cerebellar hemisphere proved on microscopic examination to be a meningo-encephalitis. Macroscopically the brain showed only slight hydrocephalus. From a consideration of the cases properly examined, Bailey says it is certain that no clinical or pathologic entity exists which deserves to be dignified by the term "pseudotumor cerebri." The term "pseudotumor cerebri," if used at all, Bailey urges should be restricted to purposes of clinical classification without attributing to it any etiologic or pathologic significance whatever.

Dystonia Lenticularis.—Two cases occurring in the same family (brother and sister) are reported by Taylor. One was entirely typical and the other doubtful.

Boston Medical and Surgical Journal

Oct. 7, 1920, **183**, No. 15

*Orchitis in Mumps. C. Wesselhoeft, Boston.—p. 425.
Why Relief of Joint Troubles is Easy or Difficult. H. W. Marshall, Boston.—p. 430.
Influence of Medical Profession on Medical Legislation and Public Welfare. J. B. Hawes, Boston.—p. 434.
*Transfusion in Obstetrics. Blood Matching as Routine on Pregnant Patients. R. S. Titus, Boston.—p. 438.

Orchitis in Mumps.—Wesselhoeft collected from all sources 8,153 cases of mumps, with 1,468 cases of testicular involvement giving a total incidence of 18.0 per cent.

Blood Matching of Pregnant Women.—It is Titus' custom to match the bloods of his patients with the blood of their husband and with the blood of a group of four persons, so as to be prepared for the performance of transfusion should it be necessary later on. This is done within six or eight weeks of expected delivery.

Florida Medical Association Journal, St. Augustine

September, 1920, **7**, No. 3

Diarrheas of Infancy. M. B. Herlong, Jacksonville.—p. 38.
Problem of Physical Illiteracy. G. Whitford, Ozona.—p. 40.

Iowa State Medical Society Journal, Des Moines

Sept. 15, 1920, **10**, No. 9

Treatment of Uterine Tumors. L. J. Stacy, Rochester, Minn.—p. 301.
Vestibular Manifestations in Neurologic Cases. W. W. Pearson, Des Moines.—p. 303.
Diseased Tonsils. R. M. Lapsley.—p. 308.
Tonsils Cases I Have Met. C. P. Frantz, Burlington.—p. 309.
Lacrimal Apparatus. J. E. Reeder, Sioux City.—p. 313.

Journal of Biological Chemistry, Baltimore

September, 1920, **43**, No. 2

Does Gliadin Contain Amide Nitrogen? T. B. Osborne and O. L. Nolan, New Haven, Conn.—p. 311.
Methods Used in Determining Electric Conductivity of Solutions. J. F. McClendon, Minneapolis.—p. 317.
Rate of Hydrolysis of Phosphoric Esters of Sugar Derivatives. P. A. Levene and M. Yamagawa, New York.—p. 323.
Hydrolysis of Nucleotids. M. Yamagawa. New York.—p. 339.
Estimation of Aminoethanol and of Cholin Appearing on Hydrolysis of Phosphatids. P. A. Levene and T. Ingvaldsen, New York.—p. 355.
Unsaturated Lipoids of Liver. P. A. Levene and T. Ingvaldsen, New York.—p. 359.
Structure of Yeast Nucleic Acid. Ammonia Hydrolysis: So-Called Trinucleotid of Thannhauser and Dorfmuller. P. A. Levene, New York.—p. 379.
*Relation of Hydrogen Ion Concentration to Incoagulability of Blood Produced by Peptone, Hirudin, and Cobra Venom. M. L. Menten, Chicago.—p. 383.
Gas Production During Acetone and Butyl Alcohol Fermentation of Starch. H. B. Speakman, Toronto.—p. 401.
*Effect of Whole Blood Transfusion on Cholesterol Content of Human Serum in Pernicious Anemia. H. A. Kipp, Pittsburgh.—p. 413.
Use of Synthetic Diets in Growth of Baby Chicks. Study of Leg Weakness. E. B. Hart, J. G. Halpin, H. Steenbock and O. N. Johnson, Madison, Wis.—p. 421.
Amino-Acids in Nutrition. I. Studies on Proline. B. Sure, Madison, Wis.—p. 443.
Id. II. Nutritive Value of Lactalbumin: Cystine and Tyrosine as Growth-Limiting Factors in That Protein. B. Sure, Madison, Wis.—p. 457.
Occurrence of Inosite Hexaphosphoric Acid in Seed of Silver Maple (Acer Saccharinum). R. J. Anderson and W. L. Kulp, Geneva, N. Y.—p. 469.
Amino-Acids of Blood as Precursors of Milk Proteins. C. A. Cary, Washington, D. C.—p. 477.
*Carbohydrate Metabolism in Rabbits. I. Observations on Limits of Assimilability of Various Carbohydrates. L. B. Mendel and M. R. Jones, New Haven, Conn.—p. 491.
Id. II. Effect of Carbohydrate Feeding on Blood Sugar. M. R. Jones, New Haven, Conn.—p. 507.

Studies on Proteinogenous Amins. M. T. Hanke and K. K. Koessler, Chicago.
VI. Preparation of Histidin from Blood Corpuscle Paste.—p. 521.
*VII. Quantitative Colorimetric Estimation of Histidin in Protein and Protein-Containing Matter.—p. 527.
VIII. Method for Quantitative Colorimetric Estimation of Histamin in Protein and Protein-Containing Matter.—p. 543.
*IX. Is Histamin a Normal Constituent of Hypophysis Cerebri?—p. 557.
*X. Relation of Histamin to Peptone Shock.—p. 567.
XI. Response of Excised Uterus to Potassium Rubidium and Cesium Ions.—p. 579.
*Some Nutritive Properties of Nuts; Proteins and Content of Water-Soluble Vitamin. F. A. Cajori, New Haven, Conn.—p. 583.

Prevention or Retardation of Clotting.—From the work outlined by Menten it is evident that the rôles which peptone, on the one hand, and hirudin and cobra venom on the other, play in the prevention or retardation of clotting of blood are of a very different character. With the production of incoagulability by peptone there occurs a marked increase in the acidity of the blood, a condition under which the other two substances lose completely or in large degree their anticoagulant power.

Effect on Cholesterol Content of Blood Transfusion.—Kipp found that repeated whole blood transfusion does not appreciably alter the total cholesterol content of the serum in pernicious anemia. The immediate increase in cholesterol in the serum of the recipient, following transfusion of whole blood, is dependent on the degree of admixture of the blood from the donor with that of the recipient and on the time which has elapsed after the transfusion, when the specimen of blood from the recipient is obtained. The cholesterol content of the serum varies relatively with the degree of anemia and the hemoglobin percentage of the blood. The cholesterol level in the serum of patients with pernicious anemia may be an index of its utilization against hemolytic substances present in the body in this disease. The relative depression of cholesterol manifested in the more severe cases indicates an increased demand for the neutralization of these toxic substances.

Carbohydrate Metabolism.—Comparable doses of carbohydrates gave rise to hyperglycemia in the following order of increasing blood sugar values: dextrin, dextrimaltose and glucose. Sucrose ingested in doses sufficient to cause glycosuria presented three distinct phenomena: (1) hypoglycemia with normal total blood sugar content accompanied by sucrosuria; (2) a relatively low glycemia with high total blood sugar value accompanied by both glycosuria and sucrosuria; (3) hyperglycemia accompanied by glycosuria. In the few determinations made, maximum blood sugar values were attained one hour after ingestion of glucose and dextrimaltose, an increase in dose resulting, in general, in an increase in blood sugar content.

Estimation of Histidin.—A colorimetric method is described by Hanke and Koessler by means of which quantities of histamin (B-imidazolylethylamin) as small as 0.1 mg. can be accurately determined in protein and protein-containing matter. The presence of histamin could not be demonstrated in 40 gm. of casein by this method. Casein contains a depressor substance that is similar to histamin pharmacologically. Histamin, that has been added to casein before the latter is hydrolyzed, can be recovered quantitatively. The presence of histamin could not be demonstrated in 75 c.c. of human blood serum by this method. Histamin that has been added to the blood serum before the latter is hydrolyzed can be recovered quantitatively.

No Histamin in Hypophysis Cerebri.—The result of careful testing showed that perfectly fresh beef hypophysis does not contain histamin.

Histamin and Peptone Shock.—A typical peptone is obtained by the injection of a histamin-free peptone; hence Hanke and Koessler state that peptone shock and histamin shock are not identical.

Vitamins in Nuts.—Satisfactory growth was observed by Cajori in young rats on diets in which the almond, English walnut, filbert and pine nut, respectively, furnished the essential source of protein in the ration. Normal growth can be secured when rats are fed on otherwise adequate diets containing the almond, English walnut, black walnut, Brazil nut, chestnut, or pecan as the sole source of water-soluble vitamin. Animals which have declined on a diet devoid of water-soluble vitamin promptly recover when the almond, English walnut, filbert, hickory, pine nut, chestnut, or pecan is introduced in the diet. These observations indicate that nuts are sources of abundant quantities of water-soluble vitamin. The proteins of the almond, English walnut, pine nut or filbert furnish the necessary nitrogenous complexes for the elaboration of milk in rats.

Journal of Laboratory and Clinical Medicine, St. Louis

September, 1920, **5**, No. 12

*Incidence of Streptococcus Hemolyticus in Recent Epidemic of Influenza. H. L. Conner, M. C., U. S. Army.—p. 767.
Chemical Changes in Blood in Disease. VI. Cholesterol. V. C. Myers, New York.—p. 776.
*Value of Complement Fixation Test in Tuberculosis. R. Upham and A. J. Blaivas, Brooklyn.—p. 784.
*Body Temperature Taken in Freshly Voided Urine. T. Kasparek, Prague.—p. 791.
Laboratory Chart for Recording Observations on Microorganisms. F. W. Tanner, Urbana, Ill.—p. 792.
Improved Method for Feeding Rabbits by Stomach Sound. M. R. Jones, New Haven, Conn.—p. 797.

Influenza and Hemolytic Streptococcus.—The survey made by Conner disclosed a direct relationship between *Streptococcus hemolyticus* and the influenza epidemic.

Value of Tuberculosis Complement Fixation Test.—Patients who came for gastro-intestinal disturbances and in whom tuberculosis was not suspected were tested for tuberculosis by Upham and Blaivas. The antigens of Petroff, Miller and Fleisher-Ives were used. In the original technic there were eight positive results with Petroff's antigen, four with Miller's and three with Fleisher-Ives' antigen. In a modification of this technic there were fourteen positive reactions with Petroff's antigen, eleven with Miller's and eleven with Fleisher-Ives'. There was not a single case in which Miller's or Fleisher-Ives' antigens were positive that Petroff's antigen was negative; on the contrary, there were cases where the Petroff antigen was positive and Miller's and Fleisher-Ives' antigen were negative. These conclusions regarding the antigens are not final, as future experiments may prove otherwise. The authors agree with Singer and Ives that a serologic test for tuberculosis that will be as useful as the Wassermann test in syphilis is desired, but they observed that the original technic for tuberculosis was not as valuable as the Wassermann test in syphilis. If the eleven cases of clinical tuberculosis, 39.6 per cent. reacted positive, whereas in the modification there were 59.4 per cent. positive. In other words, the modification gave 20 per cent. more positives than the original test.

Body Temperature Determined by Temperature of Urine.—The results of the investigation made by Kasparek indicate that the method of determining the body temperature by observation of the temperature of freshly passed urine is of practical value. This will apply principally to cases in which measurement by rectum is impossible or obnoxious, as, for instance in timid patients (children and hysterics) or in hypochondriacs, who should not be acquainted with the existence of high temperature. It may also be of value as a new diagnostic method in diseases of the urinary tract.

Journal of Orthopaedic Surgery, Lincoln, Neb.

September, 1920, **2**, No. 9

Traumatic Osteomyelitis As Seen During War. E. W. Ryerson, Chicago.—p. 499.
*Pain in Great Toe from Adhesions of Internal Sesamoid Bone. R. Hammond, Providence, R. I.—p. 506.
*Technic of an Operation for Spinal Fusion as Practised in Montreal. A. M. Forbes, Montreal.—p. 509.
*End-Result Study of Arthrodesis for Nontubercular Affections of Hip Joint. H. W. Spiers, Los Angeles.—p. 515.
*Operation for Relief of Median Nerve Anesthesia. R. I. Harris, Toronto.—p. 519.
Hypertrophy of Head of Fifth Metatarsal. J. K. Young, Philadelphia.—p. 527.
Arthroplasty of Knee Joint. Putti (Translation).—p. 530.

Pain in Great Toe Caused by Sesamoids.—Two cases are cited by Hammond in which pain in the great toe proved to be due to adhesions between the internal sesamoid bone and

the head of the first metatarsal bone. In both cases the pain was relieved by the removal of the sesamoid bone. In the first case the pain was felt on the internal surface of the first toe from the metatarsophalangeal joint forward to the end of the toe; in the second case the pain was felt on the under surface of the first toe when bearing weight and was localized at the metatarsophalangeal joint.

Operation for Spinal Fusion.—In the operation described by Forbes, the supraspinous ligament, the interspinous ligaments and other tissues between the adjacent spinous processes are removed. In the case of the dorsal vertebrae the following additional steps are carried out. The spinous processes and laminae are so gouged by means of a concave chisel that their cortical layers are separated from the medulla beneath and a series of chips of bone and periosteum are pried up along the superior and inferior surfaces of these parts of the vertebrae. These chips of bone are made to interdigitate with each other, thus similar cortical chips or digitations from the adjacent vertebrae are so opposed that the new bone thrown out from the raw surfaces of the exposed medulla will unite in one bridge or band extending from vertebra to vertebra. In other words, the laminae and spines in this region are in such close opposition that the interval between them is easily bridged by pushing the elevated fragments adherent to the periosteum alternately upward and downward from the laminae and spinous processes thus making a form of connecting trellis. The laminae are so gouged by means of a concave chisel that their cortical layers are separated from the medulla and pried up along the superior and inferior surfaces of these parts of the vertebrae as practiced in the dorsal vertebrae. In the case of the spinous processes, as these are more widely separated, the connection is made more directly by splitting them vertically into several thin sections which are forced upward and downward and to the sides in order to interlock with those from the adjoining spinous processes and laminae. In other words, the spinous processes of the adjacent lumbar vertebrae are multisected into a petal-like formation extending in a vertical direction. The layers of petals are made to interlock or interdigitate with each other after having been depressed laterally and made to lie layer on layer over the laminae of the vertebrae which have already been freshened. The patient then is laid in the prone position on a narrow hammock and placed in the position of greatest possible correction, and this correction is maintained by means of a plaster jacket in which the patient remains for six months.

Arthrodesis for Nontuberculous Affections of Hip.—The statistical study of twenty-five cases made by Sniers shows that arthrodesis for painful hips of traumatic origin gives a satisfactory end-result, whereas arthrodesis for painful hips of hypertrophic arthritic origin is less satisfactory but justified. The time of convalescence is a long one, approaching one year. The tendency of the extremity is to return to the position of adduction and little should be promised in this regard.

Relief of Median Nerve Anesthesia.—In the case cited by Harris the radial nerve was united end to end with the median. The operation appears to offer a means of alleviating one of the worst disabilities of irreparable median injuries, viz., anesthesia of the palmar surface of the thumb, index and middle fingers.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1920, **16**, No. 2

*Action of Drugs on Output of Epinephrin from Suprarenals. VI. Atropin; Pilocarpin. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 71.
Action of Cocain on Splanchnic and Cervical Sympathetic Neuromuscular Mechanisms. A. L. Tatum, Chicago.—p. 109.
*Part Played by Liver in Regulation of Blood Volume and Red Corpuscle Concentration in Acute Physiologic Conditions. P. D. Lamson, Baltimore.—p. 125.
*Action of Borax on Uterus. J. W. C. Gunn, Cape Town, S. A.—p. 135.

Effect of Atropin and Pilocarpin on Epinephrin Output.—According to Stewart and Rogoff the rate of output of epinephrin from the suprarenals (in cats) is not materially influenced by the action of atropin or pilocarpin. A moderate increase in the rate of liberation may be produced by atropin, which in large doses may be preceded by a moderate transient depression of the rate of output. The augmentation of the output, if any is caused, by pilocarpin is small and is not comparable with the large increase in the rate of epinephrin liberation caused by strychnin or the immediate effect of nicotin. One experiment was performed which indicates that pilocarpin is capable of producing a moderate depletion of the epinephrin store, suprarenals with intact nerve supply.

Cause of Acute Polycythemia.—Evidence is given by Lamson to show that there is no reservoir of red corpuscles in the body normally of sufficient magnitude to influence the red count appreciably. All conditions of acute polycythemia in which there has not been sufficient time for red cell production are due to concentration of the blood by fluid loss. The physiologic polycythemias of exercise, asphyxia, increased blood pressure and emotional disturbances, could all be of the epinephrin type, namely, temporary loss of fluid from the circulation through the liver lymphatics, although it is not yet proven that they are. Two other types of acute polycythemia occur, namely, those in which there is endothelial poisoning as after the injection of histamin, when fluid is lost into the tissues directly, and in cases of local irritation when fluid is secreted, as in the diarrhea of cholera, and gas poisoning, in which enormous amounts of fluid are secreted into the bronchi.

Effect of Borax on Uterus.—Gunn states that borax has a direct stimulant action on the uterus in concentrations corresponding to toxic doses. This action is largely due to the alkalinity, as neutral solutions have less effect.

Laryngoscope, St. Louis

Sepetmber, 1920, **30**, No. 9

Relationship of Anatomy and Physiology to Pathology of Nose, Throat and Ear. H. S. Wieder, Philadelphia.—p. 543.
Apparatus for Irrigating Nasal Cavities, Useful in Home Treatment. C. J. Imperatori, New York.—p. 550.
Diagnosis of Accessory Sinus Disease Causing Loss of Vision. L. E. White, Boston.—p. 551.
New Instrument and Method for Washing and Draining Nasal Sinuses. M. Unger, New York.—p. 561.
Mastoidectomy (Perisinus Abscess, Exposure of Dura) Followed by Attacks of Toxic Insanity; Recovery. O. Glogau, New York.—p. 566.
Mastoiditis Without Tympanic Involvement. S. Salinger, Chicago.—p. 573.
Cavernous Sinus Thrombosis Following a Secondary Mastoidectomy. J. A. Robinson, New York.—p. 574.
Simple Bloodless Tonsillectomy, with Local Anesthesia. S. Rosenblatt, Chicago.—p. 576.
Motor Neuroses of Larynx. G. W. MacKenzie, Philadelphia.—p. 585.
Condemnatory Note on Use of Paraffin in Cosmetic Rhinoplasty. S. Oppenheimer, New York.—p. 595.
The Deaf. J. D. Wright, New York.—p. 597.

Medical Record, New York

Oct. 9, 1920, **98**, No. 15

Chronic Tonsillar Infections. H. B. Anderson, R. W. Mann, and N. C. Sharpe, Toronto.—p. 589.
Anatomy, Physiology and Pathology of Tonsillar Structures in Relation to Cryptogenic Infections. G. B. Wood, Philadelphia.—p. 593.
Therapeutics of Benzosulphinid. R. W. Wilcox, New York.—p. 595.
*New Procedure for Prevention of Spinal Puncture Headache. G. Baar, Portland, Ore.—p. 598.
The Unconscious. H. Laveson, New York.—p. 599.
Etiologic Classification of Heart Disease. C. M. Nice and J. G. Vance, Birmingham, Ala.—p. 605.
*Protein Shock Reaction in Leprosy. E. M. Josephson, New York.—p. 607.

Prevention of Spinal Puncture Headache.—Baar follows up every spinal puncture immediately with intravenous salt solution, if not giving simultaneously arsphenamin. He injects from 500 to 750 c.c. of a 0.5 per cent. sodium chlorid solution. only three headaches occurred among seventeen patients on whom fifty spinal punctures were made.

Protein Shock Reaction in Leprosy.—An unknown amount of a vaccine was accidentally administered with an intravenous dose of sodium gynocardate to a patient suffering from a quiescent but well advanced leprosy. A typical protein shock reaction followed shortly after the injection. For several days following the recovery from the shock the patient

stated that he felt an improvement, notably in several anesthetic areas. Within a week, however, there supervened a marked exacerbation of the disease. A crop of macules rapidly appeared, more markedly over the parts previously more extensively involved, the face and the arms; a chronic ulnar neuritis lighted up and once again became hyperacute, and the patient ran a low fever as compared with his previously subnormal temperature. When Josephson last saw the patient, two months later, the exacerbation had not yet subsided. This case indicates that the protein shock reaction has some possibilities in the diagnosis of latent leprosy. The reaction, however, bears the very unpleasant feature of creating an exacerbation of the disease. Experimentally, Josephson thinks, its use is pardonable in checking up cases of suspected cures where release of the patient from the leprosarium is advocated, and in preventing spread of the disease by immigration from the endemic zones.

Michigan State Medical Society Journal, Grand Rapids

October, 1920, **19**, No. 10

*Protective Changes in Oviduct. J. E. Davis, Detroit.—p. 429.
Sluder Operation. E. J. Bernstein, Detroit.—p. 448.
Kidney and Bladder Sag in Women. G. V. A. Brown, Detroit.—p. 450.
Technic of Gifford's Operation for Destroying Lacrimal Sac. R. D. Sleight and W. Haughey, Battle Creek, Mich.—p. 451.
Chronic Appendicitis, Scapegoat of Abdominal Surgery. H. Cabot, Ann Arbor, Mich.—p. 452.
Diagnosis of Hyperthyroidism. C. H. Johnston, Grand Rapids, Mich.—p. 456.
*Case of Pellagra. R. C. Moehlig, Detroit.—p. 461.

Changes in Oviduct.—Thirty representative cases illustrating twenty-three types were studied intensively by Davis to portray the correlation of morphologic and histologic tubal changes.

Pellagra.—The case cited by Moehlig illustrates the production of pellagra dermatitis after exposure to the sun's rays and a peculiarity in diet.

Minnesota Medicine, St. Paul

October, 1920, **3**, No. 10

*Tuberculosis of Knee Joint in Children. M. S. Henderson, Rochester, Minn.—p. 463.
Study of Chest Conditions Associated with Aortic Diseases, Specific and Nonspecific. E. L. Tuohy, Duluth, Minn.—p. 471.
Chronic Interstitial Nephritis in Children. R. Taylor, Minneapolis.—p. 481.
*Acute Dilatation of Stomach. O. W. Holcomb, St. Paul.—p. 486.
Pre-Eclamptic Toxemia and Post Partum Eclampsia. A. L. McDonald, Duluth, Minn.—p. 494.
Mechanics of Digestion. C. N. Hensel, St. Paul.—p. 497.

Knee Joint Tuberculosis in Children.—Open air, sunshine, tonics, nourishing food and congenial and at the same time sensible surroundings, Henderson says, should be insisted on in the treatment of this condition. The keynote to local treatment is conservatism. If treatment is instituted early and the proper means are taken to prevent the development of deformities, the management is easy. The patient coming late with subluxation and knock-knee and external rotation of the tibia is, on the other hand, most difficult to treat. A properly applied plaster-of-Paris cast affords excellent fixation. The ordinary stiff legged brace, in mild cases, is often sufficient. In the more acute cases rest in bed with extension may be necessary and when the patient is allowed to be up a plaster of Paris cast is indicated, with a high soled shoe on the opposite foot and crutches to prevent weight bearing. The Thomas extension splint is excellent, but unless guarded against is especially prone to cause a relaxed knee joint. As the condition improves, a walking caliper Thomas splint may be used. All apparatus must be supervised carefully and care taken once the flexion is overcome to prevent genu recurvatum. When subluxation is present, more elaborate measures are necessary. Prolonged traction with weight and pulley, with the line of pull carefully directed, may straighten the knee. At the first indication of a tendency to further subluxation, the force should be stopped and a cast applied with the flexion deformity only partially corrected. This may be repeated and usually the knee can be brought straight in three or four attempts. The knee must never be moved back and fourth, but merely forced straight to the point where it seems safe. It has never been our custom in the Mayo Clinic to resect tuberculous knees in children.

Acute Dilatation of Stomach.—Early and repeated gastric lavage, according to Holcomb, will save the majority of cases. In well developed cases at least one trial lavage should be given where the first return of the gastric content is clear before the washing is discontinued. The posture treatment should not be forgotten. Patients may be saved by this procedure where other measures fail. Surgery is not indicated except where there are definite signs of obstruction, in which cases naturally lavage and posture fail. An offensive or feculent odor of the vomitus or gastric content is not in itself prime evidence of an obstruction.

Missouri State Medical Association Journal, St. Louis

October, 1920, **17**, No. 10

*Treatment of Advanced Carcinoma of Mouth. V. P. Blair, St. Louis.—p. 395.
*Diagnosis of Chronic Myocarditis. F. N. Wilson, St. Louis.—p. 403.
*Thrombosis of Coronary Arteries with Tachycardia. G. R. Herrmann, St. Louis.—p. 406.
Two Cases of Blindness Relieved by Ethmoid Exenteration; Case of Kerato-Iritis Due to Tonsil Infection. H. W. Loeb, St. Louis.—p. 409.
Review of Surgery of Gonorrhea in Male. E. G. Mark, Kansas City, Mo.—p. 411.
Abdominal Syphilis. J. Q. Chambers, Kansas City, Mo.—p. 415.
Present Status of Nitrous Oxid-Oxygen Anesthesia. M. H. Clark, Kansas City, Mo.—p. 417.
Celluloid Foot Form Brace. R. McE. Schauffler, Kansas City, Mo.—p. 420.
Sterilizing Seminal Vesicles with Mercurochrome 220. N. F. Ockerblad, Kansas City, Mo.—p. 421.

Cancer of Mouth.—It is probable that in only 1 per cent. of fatal cancers of the mouth does infection extend below the clavicle. This fact, Blair says, with the extreme gruesomeness of the later stages of the disease, should lend confidence in attacking it surgically. In all cases the related lymphatics of the neck should be removed.

Diagnosis of Chronic Myocarditis.—Every patient with cardiac decompensation who has neither aortic insufficiency nor stenosis nor mitral stenosis, Wilson says, may be looked on as a case of chronic myocarditis. It is the failure of the heart muscle to do its work that gives rise to this condition. Less marked symptoms of cardiac insufficiency, such as increasing shortness of breath or anginal attacks, are to be looked on as myocardial in origin when they occur in patients past middle age, providing no noncardiac cause for them can be found. The diagnosis of chronic myocarditis in the young on symptoms alone is not justifiable.

Coronary Thrombosis with Tachycardia.—Six cases are presented by Hermann three of which were proven at necropsy to be coronary thrombosis. The first case was one of angina major, with death with the first breast pang. The second patient survived the attack but died of rupture of the degenerated necrotic ventricular wall, which had resulted from the infarction that followed the thrombosis. Electrocardiograms gave suggestive evidence of grave myocarditis. Of the other four cases, the last one was proven to be coronary thrombosis at necropsy, while the other three are highly probable cases. All had acute severe anginal attacks and presented high pulse rates, from 170 to 250 per minute, and characteristic electrocardiographic findings (paroxysmal ventricular tachycardia), which heretofore have been shown to be associated experimentally only. One patient is still living two years after the attack. One died six months after the attack. One died six weeks after a sudden onset, with a persistent status anginosus without relief until death. The last one died twenty-six hours after the onset of a terrific anginal attack. He had two long paroxysms of ventricular tachycardia. Necropsy showed thrombosis of the descending branch of the left coronary artery. This is the first clinical case on record substantiating Lewis' experimental facts. The other cases were similar in every way, except that they were not checked up postmortem. The pulse rates ranged from 170 to 250. Syphilis was the promient etiologic factor in the series. Only one patient had a positive Wassermann. Three patients at necropsy showed positive histologic evidence of syphilis. Three gave definite histories of "hard chancres." Four gave suggestively positive marital histories.

New Jersey Medical Society Journal, Orange

October, 1920, **17**, No. 10

Arthroplasty. G. H. Sexsmith, Bayonne.—p. 333.
Economic Aspect of Modern Diagnostic Survey. J. Hunter, Jr., Westville.—p. 341.
Cholecystitis Complicating Gastric Ulcer. H. G. MacDonald, Hackensack.—p. 349.

New Orleans Medical and Surgical Journal

October, 1920, **73**, No. 4

Is It Scientific to Give Vaccines on a Clinical Diagnosis? G. H. Sherman, Detroit.—p. 125.
*Operative Cure of Pruritus Ani and Vulvae. C. W. Allen, New Orleans.—p. 127.
Rôle of Physicians in Physical Education. C. M. Menville, Houma, La.—p. 129.
Five Hundred Appendectomies. E. Kiblinger and A. Kiblinger, Marksville, La.—p. 136.

Operation for Pruritus Ani and Vulvae.—The operation described by Allen has in view the separation of the skin from the underlying tissue thus dividing all nerves which reach the affected parts, rendering them anesthetic, and preventing the skin from immediately healing to the underlying tissues by packing, which is kept up until a firm bed of granulation has formed, which usually requires about one week, when the packing is discontinued and the skin allowed to fall back in place where it soon is again firmly united, leaving an anesthetic area which nearly equals the extent of the undermined area. This anesthetic area is not complained of but is usually a quite welcome change. It gradually diminishes in size with the return of normal sensation after a few months and has not been followed by a return of the pruritus. In the case of anal pruritus a series of incisions are made beginning at the anal margin and continued outward to about one-half inch beyond the affected area, which rarely exceeds 2 inches. These incisions are made about 1 inch apart at their peripheral extremities until the entire perineal region has been covered. These skin strips are dissected up, preferably with a scalpel, except at their two ends which are left attached.

New York Medical Journal

Oct. 9, 1920, **112**, No. 15

Diagnosis of Inflammations of Male Urethra. A. L. Wolbarst, New York.—p. 521.
Comparative Anatomy of Genito-urinary Organs of Lower Animals. H. Tucker, Philadelphia.—p. 525.
Modern Treatment of Syphilis. O. L. Levin, New York.—p. 531.
Conquest of Venereal Infection. E. A. Rout, London.—p. 533.
Results in Treatment (Swift-Ellis) of Neurosyphilis. P. Goldfader, Brooklyn.—p. 536.
*Syphilis as Cause of Delayed Healing in Noninfected Abdominal Incision. W. E. Darnall, Atlantic City.—p. 539.
Early View of Venereal Disease. W. R. Riddell, Toronto.—p. 540.
Disorders of Function of Urinary Bladder. S. R. Martin, Buffalo.—p. 544.
Wassermann Reaction. C. G. Cumston, Geneva, Switzerland.—p. 547.

Syphilis Causes Delayed Wound Healing.—Three cases are recorded by Darnall to suggest syphilis as one of the causes, at least, of delayed healing in the abdominal incision.

Oct. 16, 1920, **112**, No. 16

*Relation of Medical Profession to Campaign for Control of Cancer. R. B. Greenough, Boston.—p. 565.
*Use of Radium in Esophageal Cancer. H. H. Forbes, New York.—p. 568.
*Treatment of Arterial Hypertension. J. H. Musser, Philadelphia.—p. 570.
What is Disease? C. L. Redfield, Chicago.—p. 572.
Doctor and Neuropath. C. R. Ball, St. Paul.—p. 575.
Impairments Regarding Family and Personal History. W. H. E. Wehner, Philadelphia.—p. 579.
*Therapeutic Value of Cupping. J. Epstein, New York.—p. 584.
Biochemistry of Drug Addiction. A. S. Horovitz, Cincinnati.—p. 585.

Campaign Against Cancer.—Greenough believes that the situation in regard to cancer is at present a very serious one, and that it demands the best efforts of the whole medical profession toward its relief. While the first step must be taken by the education of the public to the dangers of delay, and the recognition of the early symptoms of cancer, more must yet be done to help the physician to recognize the disease in its earliest and curable stages, in order that his patient may have the benefit of such resources in the way of operation and other methods of treatment as the community affords. Physicians must teach that the so-called precancerous diseases justify and demand treatment in the prophylaxis of cancer, and, finally, they must support in every way possible the investigations which are being carried on in hospitals and in laboratories all over the world to improve the effectiveness of methods of treatment of cancer.

Radium in Esophagus Cancer.—Forbes details the technic employed in the radium treatment of six cases of malignant disease of the esophagus. One patient died, hemorrhage being the cause of death.

Treatment of Arterial Hypertension.—Musser emphasizes the point that unless some threatened vascular cardiac or renal catastrophe seems imminent, physical and hygienic measures should be relied on more than drugs in the treatment of this condition. The reduction of salt and water intake forms a valuable adjuvant to these measures.

Value of Cupping.—As the result of clinical investigation on the subjective and objective effects of cupping, Epstein states definitely that it does not prevent or cure influenza or pneumonia or any other disease of the lungs for which it is most commonly used. Cupping may do some good in edema or congestion of the bases of the lungs, in renal congestion, in subacute pleuritis, in lumbago or other muscle aches, in neuritis and neuralgia. Cupping does actual harm to infants, young children, asthenic adults, and the aged. It makes them weak, and their skin sore, painful, and black and blue. The entire process of cupping, with its imposing paraphernalia, is so terrifying to young children that it should never be used in any disease of childhood. Whatever good there may be in the counterirritation of cupping has been grossly abused. When cupping is used in the right case with proper care and discretion it may be of some assistance in the care of the sick; but its careless, thoughtless, and offhand use for any disease or no disease has done much harm to many patients and brought down this popular remedy to the ranks of a quack medicine and a therapeutic humbug.

Ohio State Medical Journal, Columbus

Oct. 1, 1920, **16**, No. 10

Causes and Treatment of Conditions Underlying High Blood Pressure. L. F. Barker, Baltimore.—p. 709.
Peripheral Nerve Injuries: A Clinical Analysis. L. J. Pollock, Chicago.—p. 720.
Vestibular Vertigo; Prognosis in Different Types of Cases; Reports of Cases. P. D. Kerrison, New York.—p. 726.
Physiology of Normal Thyroid and Physiology of Thyroid in Exophthalmic Goiter. D. Marine, New York.—p. 735.
Etiology and Pathology of Exophthalmic Goiter; Their Bearing on Prevention, Prognosis and Treatment. A. Crotti, Columbus.—p. 738.
Medical Problems in Treatment of Exophthalmic Goiter. C. F. Hoover, Cleveland.—p. 742.
Surgical Problems in Management and Treatment of Exophthalmic Goiter. G. W. Crile, Cleveland.—p. 746.
*Treatment of Hyperthyroidism with Corpus Luteum: A Second Report. H. H. Hoppe, Cincinnati.—p. 749.
*Preliminary Report on New Method for Clinical Diagnosis of Toxic Thyroid States; Serologic Technic. W. N. Berkeley, New York.—p. 754.
Goiter Survey Work in Ohio; Incidence of Simple Goiter in School Children of Cleveland, Akron and Warren. D. Marine, New York, and O. P. Kimball, Warren, Ohio.—p. 757.

Corpus Luteum in Hyperthyroidism.—The theory on which the corpus luteum treatment of hyperthyroidism is based, is that hyperthyroidism is caused by a defective secretion of the interstitial sex glands; that the hormones of the interstitial sex glands have an inhibitory and regulatory action on the secretion of the thyroid; that when the function of these interstitial glands is deficient, there is a lack of physiologic inhibition of the thyroid, with an excessive secretion and therefore, hyperthyroidism. In other words, hyperthyroidism and hypo-ovarianism are synonomous conditions. Hoppe emphasizes that these patients also require careful dietetic, hygienic and symptomatic treatment. He has had very good results from this treatment.

Fixation Test of Toxic Thyroid.—Starting out with this test as a guide—i. e., using normal dog thyroid as antigen—fixation experiments have been done by Berkeley and Koopman on more than 175 human serums, of which 40 were under suspicion of positive thyroid dyscrasia. Of the 40, 18 were clinically undoubted cases of exopthalmic goiter, 2 were probably so, 10 were doubtful, and 10 were probably not.

Psychobiology, Baltimore

August, 1920, **2**, No. 4

Some Transfer Factors in Maze Learning by White Rat. J. F. Dashiell, Chapel Hill, N. C.—p. 329.
Dynamogenic Influence of Light on Tactile Discrimination. H. M. Johnson, Cleveland.—p. 351.

October, 1920, **2**, No. 5

Integration of Movements in Learning in Albino Rat; Study of Adjustment of Organism to Environment. J. L. Ulrich.—p. 375.

South Carolina Medical Association Journal Greenville

September, 1920, **16**, No. 9

County Health Department; Factor in Disease Reduction. L. A. Riser.—p. 216.
Incision of Tumors for Diagnosis. K. M. Lynch, Charleston.—p. 217.
Proctoscope in General Diagnosis. F. M. Durham, Columbia.—p. 221.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 25, 1920, **2**, No. 3117

*Relation of Physiology to Medicine. T. Lewis.—p. 459.
*End Results of Injuries to Peripheral Nerves Treated by Operation. W. Thorburn.—p. 462.
*End Results of Injuries to Peripheral Nerves Treated by Operation. P. Sargent.—p. 464.
Results of Operations for Nerve Injury at Edinburgh War Hospital. M. F. Forrester-Brown.—p. 467.
*Late Results of Nerve Operation. J. L. Joyce.—p. 468.
*Dementia Praecox and Its Relation to Other Disorders. B. Hart.—p. 470.
Fatal Poisoning by Arsine (Arseniuretted Hydrogen). M. Bannister.—p. 476.
*Case of Erysipelas Terminating in Acute Thyroiditis. L. M. Weeks.—p. 476.
*Hereditary Spastic Paraplegia with Ataxia and Mental Defect. J. S. Manson.—p. 477.

How to Teach Physiology.—The obligations of physiology to medicine Lewis says are twofold: to teach the student bent on the practice of medicine the normal functions of the human body, and in doing so to train him as an accurate observer and thinker; and to lay the foundation on which the house of medical science shall erect itself. In its relation to medicine the function of physiology is to gather, classify and spread knowledge and methods of studying the normal functions of the animal body. The very closest association of physiology and medicine is necessary. In Lewis' opinion the pivot around which physiologic teaching should play is human physiology; that human as opposed to animal physiology should form the central point of physiologic teaching to medical men. Knowledge which has been obtained or is now obtainable by observation on man himself should be stressed; animal physiology should be taught where it supplements knowledge which is so obtained. It is of considerable greater consequence to the student of medicine that he should witness a given and normal phenomenon, or gather a given principle, by observation on the human rather than on the animal body; when, therefore, a phenomenon can be displayed both in the man and in the beast with equal accuracy, it should be displayed as it occurs in the former. When it cannot be displayed in man, or when it cannot be displayed with the same fine degree of certainty, then animal physiology should be called in. When a phenomenon can be displayed in man, even though it can be displayed less accurately than it can on the animal body, it should be demonstrated and stressed, not to the exclusion of the more precise demonstration on the lower vertebrate, but alongside of it, so that the two demonstrations may be evaluated and the two compared.

Secondary Nerve Suture Does Not End in Perfect Recovery.—The impression is conveyed to Thorburn by a review of reported cases that secondary nerve suture gives very good results in somewhere between one-third and two-thirds of all cases, but the most careful study of original articles, as well as personal experience, leads him to believe that a perfect neurologic recovery is rarely if ever obtained. Permanent disability may be masked in various ways, but is almost invariably to be detected if carefully searched for. Complete failures are by no means uncommon, and must be looked for in a very definite percentage of even the best operations. Such appear to be the general results in the case of secondary suture. In the case of grafting, much less is to be hoped for. Thorburn believes that it will be found that the greater the experience of end-to-end suture, the less often the need for grafting will be found to arise. So much can be done by bold operating, by extensive exposures, by thorough stretching of nerve trunks, by alteration of their anatomic course into a shorter bed, and by the operation of stretching in two stages, that grafting will always be, and should always be a last resort. He has yet to see any cases in which it has been a success.

Sargent is somewhat skeptical as to how end-results following nerve surgery should be estimated as improvement continues to be noted three or more years after operation. Late results is the term he prefers. The method of determining these results are discussed.

Surgery of Nerves.—The operations of pedicled autogenous transplants and of free autogenous transplants are in Joyce's opinion deserving of further study and research, and still have a place in the operative surgery of injured nerves.

Dementia Praecox.—Hart feels that dementia praecox has established its claim to be regarded as a clinical entity in the sense that it marks off a group of cases with notable similarities in their symptomatology, course, and outcome, although the borders of this group cannot be accurately defined. To what extent it can claim to be an entity in a more exact sense must depend on the success with which a specific morbid process can be shown to underlie it. From the clinical standpoint, a number of conditions are either akin to dementia praecox in the similarity of the morbid process involved and the clinical pictures displayed, or are connected to dementia praecox by a chain of cases showing a gradual transition from one to the other. The most important of these conditions are mental deficiency, including imbecility and idiocy, the psychoneuroses, including hysteria and the compulsion neurosis, manic-depressive insanity, Meynent's amentia (exhaustion psychoses, confusional psychoses) paranoia and Kraepelin's recently constructed conception of paraphrenia.

Erysipelas Terminating in Acute Thyroiditis.—Weeks' case commenced as an erysipelas, developed into a septicemia and terminated as an acute thyroiditis. He feels that had a blood examination been made in the early stages of the illness, an injection of antistreptococcic serum might have avoided the septicemia and acute thyroiditis.

Hereditary Spastic Paraplegia.—Manson reports the cases of four children who were affected by this disease, the parents being alive and healthy at 60. All the children were born seemingly healthy and intelligent, and went to school in due course, where they learned to read and write. The first sign of any abnormality appeared between the ages of 7 and 8 years, when they were noticed to stagger in walking. This defect progressed, and in a short time they were unable to attend school. This history is clear that in all the onset occurred in the same manner, and at approximately the same age. One child died at 22 and one at 27. The two survivors, aged 28 and 23, respectively, present practically the same symptoms. On the mother's side no abnormality can be traced. The father was the illegitimate son of a woman who was an inmate of a workhouse owing to blindness following an accident to her eyes at a mill, and of a man who was an "invalid" in the workhouse. The nature of the invalidity was not known.

Japan Medical World, Tokyo

Sept. 11, 1920, **10**, No. 37

*Cutaneous Manifestations of Leprosy. I. Ando.
Development of Myomatous Tissue in Uterus. M. Otsuki.
Influence of Foreign Cells Against Complements. T. Matsuura.
*Causative Agent of Acute Infectious Pneumonia of Rabbit. K. Seki.

Classification of Leprosy Lesions.—Ando proposes the following symptomatologic terms for the diagnosis of leprosy: (1) initial erythema, which means a typical slight reddening; (2) lepra maculosa; (3) lepra marginatum, skin lesions resemble those of psoriasis; (4) lepra maculo-elevatum; (5) leproma acuta; (6) lepra infiltrativa; (7) lepra tuberosa;

(8) atrophia ichthyoticum leprosum; (9) leukoderma leprosum (lepra alba belongs to this heading); (10) pemphigus leprosum; (11) mal perforans; (12) alopecia leprosum; (13) nychia leprosum; (14) lepra mutilans; (15) lepra totalis. Besides these fifteen different forms are the cases in which there is dull perception, only maceration of the skin, thickening of the nerves, disturbances and difficulties of the motor nerves and muscles, chaulmoogra oil feature and rarely erysipelatous changes and edema.

Cause of Pneumonia in Rabbit.—In the heart blood, lungs and liver of eighty-six rabbits dead of an acute infectious pneumonia, Seki discovered *Bacillus cuniculi-pneumonicus.* He experimentally made the rabbit inhale the bacillus by means of a spray or by smearing the culture over the mucous membrane in the larynx, and the rabbit easily became infected. This bacillus was toxic for guinea-pigs and the albino rat. It lived over forty days on culture medium and was sterilized by exposure to direct sunlight for thirty minutes. It produced no toxin. It produced antibacterial immune serum. Neither the immunized serum nor the vaccine has any curative power, but by the use of the vaccine animals were made immune against the infection.

Journal of Tropical Medicine and Hygiene, London

Sept. 15, 1920, **23**, No. 18

Bronchospirochetosis (Castellani's Bronchitis). C. L. Browne.—p. 225.
Locality Differences in Feeding Habits of Mosquitoes. M. E. MacGregor.—p. 226.
Treatment of Tropical Ulcer. N. Crichlow.—p. 227.

Lancet, London

Oct. 2, 1920, **2**, No. 5066

Disinfection and Disinfestation in Field. W. W. O. Beveridge.—p. 681.
Results of Pneumothorax Treatment of Pulmonary Tuberculosis. C. Saugman.—p. 685.
*Clinical Value of Routine Cerebrospinal Fluid Examination in Diagnosis of Nervous Disease. A. D. Bigland.—p. 687.
Diplococcus Crassus and Meningitis, Associated with a Case of Fractured Base. J. G. Forbes.—p. 690.
*Origin of Cancer. A. Paine.—p. 693.
Exophthalmos and Limitation of Eye Movements of Exophthalmic Goiter. R. F. Moore.—p. 701.

Routine Cerebrospinal Fluid Examination.—Bigland urges that no patient having nervous symptoms, even though there is a clear history of syphilis, should be regarded as having neurosyphilis until proved so by cerebrospinal fluid examination. No case showing signs of organic nerve disease, and in which no suspicion of syphilis is entertained, should be regarded as nonneurosyphilitic until proved so. No case with signs of organic nerve disease and a positive Wassermann reaction in the blood should be diagnosed as neurosyphilis until the cerebrospinal fluid also has been examined. No case with signs of organic nerve disease should be regarded as not neurosyphilis merely because his serum Wassermann is negative. In the diagnosis of neurosyphilis by the above methods the combined evidence of all the tests should alone be relied on. On no account should the diagnosis be made on the result of one test alone.

Origin of Cancer.—In Paine's opinion cancer is not a specfiic disease due to the activities of a special parasite, but a disordered growth of epithelium caused by various physical or chemical irritants, the most important being the toxins of micro-organisms. He considers that the origin of cancer lies in the degeneration of the nobler parts of the cell consequent on damage of its structure. The result of this damage is to disturb the balance of metabolism by impairing the special functions of the cell, and thereby causing persistent overgrowth.

Medical Journal of South Africa, Johannesburg

July, 1920, **15**, No. 12

Misbranded Foods and Drugs. J. McCrae.—p. 255.

South African Medical Record, Cape Town

Aug. 28, 1920, **18**, No. 16

Syphilis; Its Recognition. C. V. Impey.—p. 303.
Two Cases of Abdominal Abscess Draining into Bladder. H. Lewis.—p. 307.
Case of Malignant Endocarditis with Recovery. C. Lundie.—p. 308.

Archives de Médecine des Enfants, Paris

September, 1920, **23**, No. 9

*Cephaloplegic Syndrome in Children. F. Figueira (Rio de Janeiro).—p. 513.
Scleroderma with Inherited Syphilis. Marfan and Rabuteau.—p. 532.
*Meningococcus Meningitis in Infant. Comby and Pallegoix.—p. 535.
Cure of Diffuse Staphylococcus Meningitis and Brain Abscess Under Autogenous Vaccine. K. Lewkowicz.—p. 540.
*Suppuration in Urinary Apparatus in Children. J. Comby.—p. 548.

Head Drop in Children.—Figueira here brings the subject of the "cephaloplegic syndrome" down to date with description of 4 new cases bringing the total in Brazil to 15, all but 4 in Rio. The age ranged from 9 months to 3 years. In 80 per cent. of his own 11 cases there had been more or less directly preceding general symptoms, fever, catarrh of the air passages, vomiting, diarrhea or constipation. The tendon reflexes were partially or totally abolished or normal in the different cases. Recovery was complete in from five to twelve days. The cephaloplegia is of the flaccid type, in the extensor and flexor muscles, the child being able to move its head sideways. He compares this with the rare cases of paralysis of the neck among the 8,188 cases of epidemic poliomyelitis he has collated, and points out the differences, especially the prompt recovery, the absence of sweating, of rigidity of the neck, the normal findings in the cerebrospinal fluid, and the sudden onset of the cephaloplegia, usually on waking. On the other hand, this cephaloplegic syndrome was observed at a time when epidemic poliomyelitis was prevailing. During the period 1909 to 1911 there were 60 cases of the latter and 2 of the cephaloplegia, and from 1913 to 1918 there were 9 of the cephaloplegia to 60 poliomyelitis cases. In one instance a child developed the cephaloplegia two years after another child in the family had presented the same syndrome. There had been no case of classic poliomyelitis in the house at any time.

Meningococcus Meningitis in Infant.—Comby and Pallegoix report that a robust breast-fed infant of 8 months was taken suddenly with high fever, highest in the evening; no signs of pneumonia or digestive upset; no Kernig, and the fontanels were not bulging. Strabismus was the only clue to the cause of the fever, and lumbar puncture showed the meningococcus. Intraspinal serotherapy was begun at once, the third day, and after four injections defervescence the eleventh day was followed by complete recovery without sequels. A total of 70 c.c. of the antiserum had been injected. The early diagnosis and large doses were evidently responsible for the recovery. In connection with this case they cite sixteen others in infants—all from French or Latin countries—with recovery in seven. In five the meningitis had become partitioned off and was treated by intraventricular injection, with recovery of two of the infants. (Marcland's and Castro's cases.)

Suppuration in Urinary Apparatus in Children.—Comby translates with comment Lozano and Ruiz Falcó's work reviewed in these columns, Nov. 29, 1919, p. 1732.

Encéphale, Paris

Aug. 10, 1920, **15**, No. 8

Paralysis of Serratus Magnus. A. Barbé.—p. 489.
The Echo of What is Read. Laignel-Lavastine and Vinchon.—p. 496.
Visual Hallucinations in General Paresis. L. Livet.—p. 504.

Gynécologie et Obstétrique, Paris

1920, **1**, No. 5

*Dystocia from Immovable Retroversion. J. Potocki.—p. 413.
*Impacted Fibroma. P. Bégouin.—p. 429.
*Castration for Hemorrhagic Uterine Fibromas. De Rouville.—p. 433.
Correction of Prolapse of Uterus by Anterior-Lateral Colpovesicorrhaphy with Colpomyorectorrhaphy. R. Zaletel.—p. 444.
Treatment of Pyelonephritis During Pregnancy. A. Couvelaire.—p. 448.

Immovable Retroversion of Gravid Uterus at Term.—Potocki did not recognize that the uterus was firmly bound down by adhesions to the sigmoid flexure and the colon until after extraction of the dead child by abdominal cesarean section. In this and in Couvelaire's similar case, there had been no pain during the pregnancy to attract attention to the anomaly. Presentation was by the shoulder or sloping breech, and the flexion of the uterus prevented natural expulsion.

The walls of the uterus were taut as with hydramnios. Danger of rupture of the uterus wall should compel early intervention as soon as these retro-uterine adhesions are suspected.

Hysterectomy for Impacted Fibroma.—Bégouin relates that when the lower pole of a large fibroma is impacted so firmly that it is inaccessible from any point below, he reaches it through an abdominal incision. Seizing the top of the fibroma with forceps he draws it up and cuts a circle around its base, the tip of the bistoury sloping inward so that the body of the fibroma is thus cut loose as one cuts out a rotten spot in a pear, and the whole is lifted out in an inverted cone. This leaves nothing of the fibroma in the pelvis except a small funnel, and the sides of this collapse inward as traction is applied from below. Bégouin has now a record of ten cases in which this *évidement* method has been applied with gratifying results, and he cites Costales Latatu's report of a similar experience.

Ovariectomy for Hemorrhage from Uterine Fibromyomas.—De Rouville explains that the influence from the ovaries on a bleeding myomatous uterus is exerted on the uterus itself, and not on the myomas. The latter may keep the same size and shape long after castration has put an end to all tendency to hemorrhage. If the fibroma or myoma is not an integral part of the uterus but pedunculated, it may bleed independently of the uterus, and castration would have little effect. He has applied bilateral ovariectomy in seven cases, and six of the patients by this means escaped imminent death from their extraordinarily hemorrhagic interstitial fibromas. There was no further hemorrhage after a few days following the castration. The anemia was so extreme that he feared to risk hysterectomy. The hemorrhagic influence of the ovaries is beyond question now. He published in 1913 a case of bilateral ovarian dermoid cysts with no symptoms except hemorrhages.

Médecine, Paris

August, 1920, **1**, No. 11. Pediatrics Number

*Recent Progress in Pediatrics. P. Lassablière.—p. 645.
*Puericulture. A. Pinard.—p. 652.
*Milk Injections for Intolerance of Milk. E. Weill.—p. 655.
Welfare Work for Infants: the "Visiteuses." Chatin.—p. 661.
*The Infant's Ration. P. Lassablière.—p. 663.
*Lethargic Encephalitis. A. Netter.—p. 668.
*Scurvy in Infants. J. Comby.—p. 673.
*Tardy Misdeeds of Inherited Syphilis. H. Dufour.—p. 676.
Advantages of Milne's Method in Eruptive Fevers. Lemoine.—p. 682.
*Chronic Splenomegaly in Inherited Syphilis. E. Lesné.—p. 686.
The "Living" Element in Dietetics. G. Mouriquand.—p. 689.
*Ether in Treatment of Whooping Cough. Audrain.—p. 694.
Preparation of Condensed Milk for Infants. P. Lassablière.—p. 696.

Recent Progress in Pediatrics.—Lassablière mentions among other things the arrangements that have been made at a number of places in France to provide food and shelter for every working woman that agrees to nurse her child, and she is given a small sum of money besides. She is thus "hired" to nurse her own child. Nanterre and Tours have each one of these *abris maternels* and seven other cities have something in the same line. He mentions also as progress the article by Hess and Unger in THE JOURNAL, Jan. 24, 1920, p. 217, which reiterates the predominant importance of the proper amount of calories in infant feeding, and that rachitis is not the result of lack of fat-soluble vitamin.

Puericulture.—Pinard defines puericulture as "a new science of French origin which aims to study and apply what is known to promote eugenics and the hygiene of pregnancy and of childhood." He pleads that procreation should be planned for the human race with at least as much care as is now applied to breeding of cattle and raising of plants.

Treatment of Intolerance of Milk in Infants.—Weill's previous communications on this subject have been reviewed in these columns (Dec. 6, 1919, p. 1806). When the disturbances are due to this cause, he reiterates, a most remarkable change may follow the subcutaneous injection of from 1 to 5 c.c. of the milk that is being used, cow's or breast milk, heated in the water-bath for twenty-five minutes at longest. In most cases the injections have to be repeated to a total of 5 or 10 c.c. Vomiting is the first symptom to attract attention to the child's inability to digest the milk. Some children cry after feeding until the milk has been thrown off. Sometimes the mother gives a second feeding, and this may be retained, as if the child had vomited some poison at first. The child grows more and more restless and complaining, wakes at the slightest sound and jerks in its sleep, and the limbs may be found drawn up tight against the abdomen; this contracture is characteristic but not constant. Constipation may alternate with diarrhea, and the child loses in weight. A change to another milk may give transient relief, but the injection of milk usually transforms permanently the clinical picture to smiling, quiet sleep and increase in weight

Ration for Infants.—Lassablière insists that, not the weight, but the surface area should be the gage for the proper amounts to be fed to infants. He kept records of the proportionate amounts fed to infants that were thriving during their first year or two, and has accumulated a large series of such records. His research demonstrated further that Meeh's formula for the surface area has to be corrected for infants to $S = 10.5^3 \sqrt{P^2}$. The total surface area multiplied by 25 is the approximate amount required by the infant in twenty-four hours. He states further that the proper ration can be estimated by multiplying the height in centimeters by the figure 14. Or by multiplying the chest measure (unless the child is very thin) by 23. Or by multiplying the sum of its height and chest measure by 9. These formulas apply not only to the healthy but to undernourished and undersized infants, and serve as control.

Diagnosis and Treatment of Lethargic Encephalitis.—Netter emphasizes that while resembling epidemic poliomyelitis in many points, lethargic encephalitis differs in the long survival of the virus in the nerve centers; in this it resembles syphilis. Its course may thus be serpentine, with remissions for months or years, and the connection with cases classed as chorea, epilepsy, shaking palsy, sclerosis in patches, attacks of mania or gastric and other tabetic crises may be overlooked. Confusion is possible also with meningitis, brain tumors, neurosyphilis and typhoid fever. He advocates a turpentine fixation abscess in treatment. He applied this in eighty-three cases and the mortality was only 7.46 per cent. in the sixty-seven cases in which an abscess developed, while all but one died in the sixteen cases in which the injection failed to elicit abscess formation. In 75 per cent. of the patients that recovered under the fixation abscess there were no complications, and the recovery was prompt and complete. In ten cases he induced a second abscess later. Hexamethylenamin and epinephrin are his main reliance otherwise, given simultaneously. Convalescents' serum may be dangerous on account of the possibility of relapses.

Infantile Scurvy.—Comby reiterates the importance of suspecting scurvy in an infant when it keep its limbs still and cries if they are touched. This painful pseudoparaplegia is not observed in older children, but is constant in nurslings, and is often incorrectly diagnosed, as the gums may be normal.

Tardy Misdeeds of Inherited Syphilis.—Dufour reports three cases of dementia praecox at 20 in families with a history of syphilis at the time the child was born. In two cases young pregnant women developed hemichorea and the blood and spinal fluid gave positive serologic reactions. In two other cases chorea or hemichorea recurred with positive Wassermann reaction during a pregnancy. He has also had three cases of sclerosis in patches developing on a basis of inherited syphilis. He is confident that he arrested sclerosis in patches in three other young persons with inherited syphilis by a vigorous course of arsphenamin. If minor signs had been heeded during late childhood or adolescence, it might have been possible to ward it off completely. With chronic deforming rheumatism developing in older children in one joint and by the twentieth or twenty-fifth year spreading to other joints, with atrophy of muscles and remittent enlargement of the joint, a history of mild syphilis in the parent will generally be found. Inherited syphilis may induce a predisposition which leads to the localization of other infection, as in a recent case in which the young man developed paralysis of one leg, like that of anterior poliomyelitis, in the course of an ordinary gonorrhea. Dufour advocates that specific treatment for the parents should be kept up throughout life, and be reenforced for the woman during pregnancy. New-born

infants with positive Wassermann reaction should be treated until it veers to negative. If the mother is not aware of the taint in the family, alternating daily doses of calomel and injections of sodium nucleinate have always served him well without arousing the mother's suspicion, while they ward off dystrophy of the developing nervous system.

Chronic Enlargement of the Spleen in Children.—Lesné explains that in young children the spleen is peculiarly active, with multiple functions. All general infections attack it; all pathologic conditions of the blood affect it more than other organs, and as it is such a vascular organ, any insufficiency in the circulation is felt most severely here. In one much debilitated boy of 7, the enormous enlargement of the spleen was traced by exclusion to either tuberculosis or inherited syphilis, and it "melted away" after the second injection of neo-arsphenamin, plus roentgen exposures of the spleen.

Ether in Whooping Cough.—Audrain reaffirms the success of ether in arresting the vomiting in whooping cough, next, the spasms and finally the cough. He injects 0.02 gm. of ether into the muscle at the crest of the ilium and has never known it to fail in uncomplicated pertussis, but it does not cure cases of spasmodic cough from other causes, although it always relieves.

Paris Médical

Aug. 14, 1920, **10**, No. 33

*Rare Localizations of Rheumatism. W. Janowski.—p. 129.
Tuberculosis in Negroes in Tunis. H. Gros.—p. 132.

Rare Localizations of Rheumatism.—Janowski reports that a man had a temperature of 39 C. (102.2 F.) with violent pain in the right thorax, the whole developing suddenly. Auscultation twenty-four hours later was negative, and Janowski decided that pneumonia was developing, with irritation of the diaphragmatic pleura. The condition grew worse by the next day, the pain almost preventing breathing. As the patient was raised to permit auscultation, he winced from contact with the hands, and palpation then disclosed that all the muscles on that side were extremely sensitive, and under sodium salicylate the whole clinical picture rapidly faded away. The reason why this part of the body should have been exclusively affected is still a mystery, but the case has served as a lesson and prevented errors in diagnosis in a number of other, less extreme cases. Janowski describes further some puzzling cases of rheumatism of the sacro-iliac syharthrosis, intervertebral articulations and connections of the ribs with the spine. These cases are often mistaken for sciatica. Once Janowski found the patient on the table for the proposed operation for assumed osteomyelitis of the left ilium, but was able to demonstrate that the trouble was a promptly curable rheumatism of the sacro-iliac articulation. In another case, severe febrile rheumatism of the articulations of the cervical vertebrae had induced symptoms suggesting basal meningitis, but the prompt recovery under salicylate confirmed the true diagnosis. When the rheumatism is limited to the articulations of dorsal vertebrae, and it begins in a subacute form, it is liable to simulate Pott's disease or syphilis of the spine. In one extreme case of the kind the disturbances had been ascribed to stenosis of the esophagus from cancer, but all melted away under salicylates. Rheumatism affecting the junction of the ribs with the spine may simulate pyelitis, paranephritis, neuralgia or gallstone mischief, but the true nature of the lesion can be suspected if the pain in the side is aggravated when the trunk is flexed sideways, the pelvis immobilized, a tender point is found at the junction of the rib with the spine, and the neighboring spinous processes are tender, and perhaps also the chondrocostal articulations of the corresponding ribs.

Aug. 28, 1920, **10**, No. 35

*Nocturnal Incontinence in Adults. Papastratigakis.—p. 153.
Lethargic Encephalitis in Roumania. C. D. Constantinescu.—p. 158.
Extension of Primary Syphilis. G. Quioc.—p. 161.

Nocturnal Incontinence in Adults.—Papastratigakis was in charge of the army service for nervous and mental cases at Saloniki, and he found that the sodium chlorid content of the urine of the congenitally incontinent was always abnormally high, and the urine never had the normal aspect or composition. The response to administration of a small amount of methylene blue confirmed the abnormal character of the urine secretion. In the cases of acquired incontinence, he discovered latent chronic nephritis in a large number, and in these cases the response to the blue test was much the same as with congenital incontinence, differing decidedly from the normal response. But the sodium chlorid content was not high as in the congenital cases. He concludes with an appeal to get away from the genito-urinary apparatus in studying incontinence, and to seek a broader basis.

Presse Médicale, Paris

Sept. 1, 1920, **28**, No. 62

*Bolt for Fractured Bone. E. Juvara.—p. 605.
*Pericarotid Sympathectomy. C. Abadie.—p. 606.
Filariasis Simulating Scabies. J. Montpellier and A. Lacroix.—p. 607.

Bolt Treatment of Fractures.—Juvara's illustrations show his method of reconstructing the fractured bone by driving a steel bolt through it; nuts on each end can be screwed to hold the whole firm. The hole is bored with a long slender drill and a long tube with sharp edges is forced over the emerging tip of the drill. The drill is then removed and the steel bolt, 1 mm. in diameter and from 8 to 16 cm. long, is passed through this guide tube and on through the drilled hole. Short tubes are slipped over each end of the bolt and the nuts are screwed on beyond them.

Pericarotid Sympathectomy.—Abadie explains that certain forms of atrophy of the optic nerve are probably the result of constriction of the arterioles which nourish the nerve trunk. This special atrophy is characterized by restriction of the visual field on the side toward the nose. The internal and lower visual field may have been long lost when the external and superior shows no signs of impairment. Instillation of atropin produces only a moderate effect, and the papilla is blanched; the findings are like those in the eye with severe quinin poisoning, the arteries filiform and empty of blood. This contraction of the arterioles is variable in degree and duration, but it entails in time this form of atrophy of the optic nerve. To arrest the permanent contraction of the arterioles in a severe case of the kind, he had a stretch, 1 cm. long, of the sheath of the carotid artery resected to interrupt the sympathetic innervation. The immediate effects were brilliant, the visual field rapidly enlarged until in two weeks it approximated normal, and vision improved to ⅔. This favorable condition persisted for a month, but then, two months after the sympathectomy, the improvement retrogressed until conditions were the same as before the intervention. Ligation of the common carotid was also followed by marked improvement, but the benefit was transient. He has a record of four operations of the kind on the carotid, and although marked benefit followed, it was transient. But even this sustains the assumption of impairment of the circulation in the optic nerve and its sheath.

Progrès Médical, Paris

Aug. 14, 1920, **35**, No. 33

*Kinship of Albumins in Cancer and in Blood Serum. Loeper and others.—p. 355.
Laterovesical Hydatid Cyst. L. Thevenot.—p. 355.
Chronic Nephritis in Children. Nobécourt.—p. 356.
Radioactive Cataplasms in Treatment of Enterospasm and Enteralgia. P. Froussard.—p. 358.
Asthenia and Attenuated Responsibility. R. Benon.—p. 359.

Albumin in Serum in Malignant Disease.—The albumin in the blood serum was found unusually high in persons with cancer, and injection of guinea-pigs with the albumin from the serum induced anaphylaxis for the albumin in the cancer, thus establishing the relationship between them.

Schweizerische medizinische Wochenschrift, Basel

Aug. 19, 1920, **50**, No. 34

Importance of Probability in Medicine and Biology. H. Zangger.—p. 737.
The Relation of Causal to Statistical Modes of Thought in Physics. H. Weyl.—p. 737.
Application of Probability Calculations to Biologic, Sociologic and Medical Data. E. Haemig.—p. 741.
Importance of Calculation of Probabilities in Internal Medicine. L. Michaud.—p. 743.
Estimation of Probabilities and the Relation of Medicine to Law. H. Zangger.—p. 751.

Chirurgia degli Organi di Movimento, Bologna

July, 1920, **4**, No. 3

*The Circulation in Isolated Nerves. L. Torraca.—p. 279.
*Motor Plastic Operations: Cinematization. G. Bosch Arana.—p. 296.
Skin Plastic Operation to Correct Cicatricial Retraction of Finger. G. Pieri.—p. 303.
*Local Sweating Under Heliotherapy. V. Marconi.—p. 307.
*Fractures of Femur in Children and Youths. F. Satta.—p. 311.
Traumatic Lesions of the Carpus. T. M. Biancheri.—p. 347.

The Blood Circulation in an Isolated Nerve.—Torraca isolated the sciatic nerve in dogs by different means, and gives the findings in the vessels of the nerve, alone or when the nerve had been wrapped in rubber tissue. The vessels dilate and hypertrophy inside the rubber wall, and the circulation thus proceeds amply adequate to provide for the nourishment of the nerve even in the apparently most unfavorable cases. This occurs even with permanent isolation of the nerve from the encircling tissues.

Cineplastic Amputation.—Bosch Arana describes his method for plastic motor surgery to permit actuation of prostheses by voluntary movements, and claims that it gives a firmer control than is possible with other technics. He cuts down to the bone of the stump on the four sides, the incisions stopping about 3 cm. from the tip of the stump. Through these long parallel incisions he isolates the bone within and saws it off with a wire saw, on a level with the upper end of the incisions, from 11 to 18 cm. from the tip of the stump. After the bone has been extracted, the corresponding lips of two opposite incisions are sutured together thus bridging the space and forming a large tunnel through the stump. The other incisions are left to heal spontaneously as the skin is pulled away from them, but they soon heal over. Or two tunnels can be made. The article is illustrated, showing also an ergograph devised to test and train the force. He has obtained a lifting power of 3 kg. with excursions of 2 cm. This article has eight illustrations, but Bosch Arana's article describing fully his remarkably extensive work in this line of cinematization, in the *Semana Médica* for Nov. 29, 1919, was accompanied by thirty-three illustrations.

Sweating Around the Focus in Heliotherapy.—Marconi calls attention to the peculiar sweating around a surgical tuberculous process under the influence of heliotherapy.

Fracture of the Femur in the Young.—Satta reviews experiences with twenty-three cases of fracture of the shaft of the femur, in children from 2 to 17, which had healed with deformity requiring operative correction. He warns that when the fracture shows by the end of fifteen or twenty days that it is healing with a vicious callus, it should be operated on at once without further delay. The deformity grows only worse with time. He describes the various technics applied for different indications, and adds that an ideal outcome may be counted on when applied according to the proper indications.

Policlinico, Rome

Sept. 13, 1920, **27**, No. 37

*Coffee and the Vitamins. P. D. Mattei.—p. 1011.
Agglutination in Typhus. A. Ruggiero.—p. 1014.
*Acute Osteomyelitis of Rib. D. Pizzetti.—p. 1018.

Vitamins and Coffee.—Di Mattei fed pigeons on polished rice until they developed typical deficiency polyneuritis and paralysis. Then he gave them 8 c.c. of a 5 per cent. infusion of coffee, and the nervous symptoms promptly disappeared, the pigeons becoming apparently normal again for a time. But they did not gain in weight, although otherwise apparently normal and lively. This satisfactory condition continued for several weeks, the coffee apparently making up for the deficiency in the polished rice. But by the end of a month or six weeks, in some of the pigeons the paralysis suddenly returned and the condition was soon as grave as before. Others remained in good health but without gaining in weight. Infusion of unroasted coffee did not act the same as the roasted, and he theorizes that the effect was due to the generation of certain substances by the heat of the roasting, these substances having an effect like that of true vitamins to a certain extent. We have no right, he says, to assume that the vitamins which are generally referred to in the literature are all that there are. In conclusion he describes experiments on pigeons fed with an excessive amount of vitamins, as in bran. They lost rapidly in weight and strength; to keep them alive a little rice had to be given besides.

Acute Osteomyelitis of the Ribs.—The difficulty of differential diagnosis in cases of this kind is well illustrated by Pizzetti's case. The previously healthy man of 32 suddenly developed high fever, headache and mild pain at the base of the posterior thorax. The pain grew constantly worse until walking and deep breathing were impossible. By exclusion and palpation, a lesion was finally localized at the tenth rib, and puncture here brought pus. The operation disclosed a patch of osteomyelitis and after scraping this away and draining, recovery was soon complete. When such a lesion of the ribs is suspected, pressure on the ends of the rib, as if to bend it more, might differentiate and locate the lesion. The intense pain at the slightest movement is also instructive.

Riforma Medica, Naples

Aug. 7, 1920, **36**, No. 32

*Chronic Acrocyanosis. G. Zagari.—p. 709.
Factors in Action of Potassium Permanganate. Sabbatani.—p. 715.
*Serum Sickness Arrests Purpura. V. Ronchetti.—p. 719.
Priority in Vaccination against Tuberculosis. E. Maragliano.—p. 720.
Tuberculous Peritonitis. C. H. Mayo (Rochester).—p. 721.
Echinococcus Cysts in the Brain. E. Aievoli.—p. 723.

Chronic Acrocyanosis.—In Zagari's two cases, peripheral vasomotor upset was evidently responsible for the blue hands in one case. In the other, general derangement of the endocrine system was the unmistakable cause.

Serum Sickness Arrests Hemorrhagic Disease.—Ronchetti reports two severe cases of hemorrhagic purpura which abruptly subsided when serum sickness, with urticaria, followed an injection by the vein of normal horse serum or of serum from the emulgent vein of goats.

Semana Médica, Buenos Aires

April 15, 1920, **27**, No. 16

*Genesis of Cancer. E. Cisneros.—p. 513.
Campaign Against Tuberculosis at Rosario. J. B. Valdés.—p. 527.
Treatment of Influenza. J. A. López.—p. 535.

Pathogenesis of Cancer.—Cisneros presents a long array of arguments to sustain his assertion that cancer is not a morbid entity but a local manifestation of a general state of deficit. It occurs as a biologic reaction during this state to some foreign body of organic composition. Prophylaxis requires avoidance of all causes inducing asthenia, the state of general deficit.

Archiv für Gynaekologie, Berlin

1919, **110**, No. 2

Mechanism of Rupture of Uterus with Shoulder Presentation. R. T. v. Jaschke.—p. 231.
*Influence of Diet on Size of Fetus. L. Zuntz.—p. 244.
Uterine Mucosa During Menstruation. Meyer-Rüegg.—p. 274.
Ovulation, Embedding and Function of Tube. O. Grosser.—p. 297.
*Pressure in Spinal Fluid in Pregnancy. Kirstein.—p. 328.
*Cures of Cancer Under Radium. P. Schäfer.—p. 374.
*Experimental Castration with Cholin. H. Wintz.—p. 397.
*The Ovaries After Roentgen-Ray Treatment. P. Werner.—p. 434.
Influence of War Diet on Size of Newborn. H. Hofmann.—p. 451.
The Pressure, the Sugar, and Hemoglobin Content of the Blood in War Amenorrhea. O. Schlesinger.—p. 475.
Chorio-Epithelioma of the Vagina with Multiple Lutein Cysts in Ovaries. A. W. Fischer.—p. 496.
Colloid Cancer of Uterine Cervix plus Adenocarcinoma of the Corpus. Meyer-Wirz.—p. 510.

Scant Influence of Diet on Size of Fetus.—Zuntz selected rats for his experiments, mainly because their diet resembles that of man. The findings from his extensive research demonstrate anew the tenacity with which the growing organism insures its supply of calcium and its normal development in general regardless of the conditions of diet of the gravid animal. The weight of the fetus was only slightly modified even when the gravid animal was kept fasting to great loss of weight, and the hardness of the skull was not modified at all.

The Pressure in the Cerebrospinal Fluid.—Kirstein's long article concludes with the statement that in testing the pressure in thirty-one pregnant and nonpregnant women no influence from the pregnancy could be detected. But he found that the blood pressure is always abnormally high in eclampsia, and he explains the eclamptic convulsion as due to an exceptionally high rise in the blood pressure which keeps up during the attack, and the attack ends with a Traube-Hering blood pressure wave. In prophylaxis, attempts must be made to ward off the edema of the brain responsible for the extra pressure on the brain, and aim to reduce the blood pressure, and, above all, to prevent the extra high rise in the blood pressure which seems to be the direct cause of the convulsion. This might be warded off by injection by the vein of some substance which has a vasodilator action. The experiences related confirm Zangemeister's conception of eclampsia as the result of abnormal pressure on the brain.

Radium Treatment of Genital Cancer.—Schäfer has been reexamining patients given radium treatment between 1912 and 1915. He was able to trace 173 of 175 cases in which primary healing had occurred, and found 48.6 per cent. in good health. As recurrences are likewise amenable to radium treatment, the women return for reexamination every second or third month and in 2 cases it thus proved possible to postpone the fatal outcome for three more years. Recurrences in glands not accessible to radium often yielded to roentgen-ray treatment. With radium, recurrence may develop after a surprisingly long interval; in 2 cases treated in 1911, recurrence in glands has just developed. After a three year interval, the outcome is better than after operation, but at five years, the operation statistics are better. In 36 operable cases, 15 would probably be living today after five years if the tumor had been excised, while only 9 in this group are still alive. Very encouraging results were obtained with injection of carcinoma extract and emulsions given simultaneously with the radium or roentgen-ray treatment. It seems to render the cancer more susceptible to the radiotherapy.

Experimental Castration with Cholin.—Wintz says that it is still a mystery why certain cells are destroyed by the roentgen rays, but there is some evidence that the lipoids are the elements most affected, the lecithin in the cells becoming transformed to cholin and this in turn destroying the cell. By direct injection of cholin we might act on the cell in the same way as do the roentgen rays, a chemical imitation of radiotherapy. Experimental experience and three clinical cases seem to confirm these theoretical assumptions, but the effect is so much less than what can be attained with a single exposure to the rays, that the procedure has no practical import as yet.

Ovarian Functioning After Roentgen-Ray Treatment.—Werner reports from Wertheim's service several instances of normal pregnancy after the young women had had the ovaries exposed until total amenorrhea had been realized. The injury of the ovaries is only transient, and complete recuperation is the rule, menstruation returning sooner or later and the women bearing entirely normal children thereafter.

Archiv für Verdauungs-Krankheiten, Berlin

1920, **26**, No. 5-6

*To Reduce Secretion of Hydrochloric Acid. G. Kelling.—p. 287.
*Pancreas Ferments in the Feces. K. Isaac-Krieger.—p. 351.
*Diabetes Insipidus. H. Gorke.—p. 365.
Digestive Disturbances After Dysentery. M. Brandeis.—p. 399.

Hydrochloric Acid Secretion and Means to Reduce It.—Kelling's research on the mineral metabolism and the physiology of the secretion of hydrochloric acid has shown that the formation of the acid is mainly a matter of electrolytic dissociation and osmotic phenomena. The diet must conform to this conception, in treatment of gastric ulcer. The food must be in fluid form, and no meat or its extractives, acids, or condiments or carbonated drinks allowed. It is especially important that the ulcer patient should recline during digestion, and substances which bind the acid, such as milk, should be taken with the food. The addition of fats is useful, and they can be stirred into gruels, and oil given fasting. The intake of salt should be restricted as much as possible. Absorbents like charcoal or kaolin are of slight use as they bind very little of the acid. Bismuth carbonate is the best bismuth preparation but it must be given in large doses and before meals. Small doses have little effect on the acid. With the pylorus permeable, sodium bicarbonate, fasting, or sodium containing mineral water (with little salt content) neutralizes the acid, but the effect is not proportional to the amount. Tentative small amounts should be given to determine the optimum which is soon reached, and thus overburdening of the kidneys is avoided. If the gastric motor function is impaired, magnesia is preferable. A solution of hydrogen dioxid is a very energetic means for suppressing secretion of hydrochloric acid for a long time while promoting secretion of mucus. With stenosis of the pylorus and duodenal ulcer, excessive secretion of acid and stagnation, the stomach should be rinsed out to get rid of the acid, and atropin given to check its production. A further measure to help reduce it is to administer a soda solution by the rectum. The details of the extensive experiments on dogs and the clinical experiences are given, and are compared with those published by others, especially in regard to the mathematical laws of digestion, and the advantage of organic iron over the inorganic, and of administering it toward the end of digestion.

Pancreas Ferments in Stools and Duodenal Juice.—This article states that the Berkefeld or paper filter interferes with the outcome of tests for trypsin in extracts of feces. Acid fermentation in the bowel is liable to destroy all the trypsin present. Hence it is futile to apply tests for trypsin to the stools; only the diastase content is instructive. If the diastase test gives negative findings, in dubious cases it will be necessary to examine the duodenal juice directly. The insignificance of the tryptic and diastasic potency of the stools is appreciated only when compared with that of the duodenal juice. Diastase seems to pass unmodified through the Berkefeld and paper filters, but acid fermentation in the bowel may have a destructive action on the diastase as well as on trypsin.

The Metabolism in Diabetes Insipidus.—Gorke has been making a detailed study of three cases of polydipsia and polyuria from inability of the kidney to eliminate sodium chlorid and salts in normal concentration, although the concentration of nitrogen does not seem to be impaired. The great danger with diabetes insipidus is thus that the body will become dehydrated and the blood too thick. The only means to remedy the inability of the kidney for normal concentration is by pituitary extract, injected subcutaneously or by the vein, and the effect of this is not permanent. In the three cases described, no anomalies in the pituitary region could be detected, but amenorrhea in one and dystrophia adiposogenitalis in two others suggest a pituitary origin for the diabetes insipidus. The fourth patient had mild enlargement of the sella turcica. In conclusion the importance of examining the blood as well as the urine in these cases is emphasized.

Münchener medizinische Wochenschrift, Munich

July 16, 1920, **67**, No. 29

Treatment of General Paresis by Induction of Malarial or Recurrent Fever. P. Mühlens, W. Weygandt and W. Kirschbaum.—p. 831.
*Operative Treatment for Deafness. H. Krukenberg.—p. 835.
Observations on Silver Arsphenamin. A. Stühmer.—p. 836.
Favorable Results of Quartz Lamp Irradiation in Rachitis. G. Riedel. p. 838.
*Roentgen-Ray Treatment of Enlarged Prostate. Oppenheimer.—p. 840.
Operative Treatment of Contracted Bladder. Birnbaum.—p. 841.
An Improvement in Hegar's Dilator. P. Klaar.—p. 844.
Herpes Zoster in Relation to Arsenic. K. Mezei.—p. 844.
Exanthem Accompanying Diabetes in Child. Prym.—p. 845.
Diagnosis of Incipient Tuberculous Arthritis. J. Oehler.—p. 845.

External Operation for the Hard of Hearing.—Krukenberg operates on the external ear, resecting cartilage and bone from behind to make the meatus wider and straighter. With the small operation he describes, with an illustration, the hearing has been improved up to 300 per cent. in his ten patients thus treated (fifteen operations). The ages ranged from 8 to 45.

Roentgen-Ray Treatment of Hypertrophy of the Prostate.—Basing his statements on his experience with fifty-four cases, Oppenheimer says that the value of roentgen-ray treatment in hypertrophy of the prostate is limited. In the first stage the results are sometimes good, but the effect is not permanent and does not prevent the further development of the disease. If used promiscuously with the hope of decreasing the residual urine or of reducing the size of the prostate, it will prove disappointing. On the other hand, if used as a symptomatic remedy, within a limited sphere, it has a favorable effect on prostatic bleeding, and exerts in many cases a calming influence on the frequent micturition of the first stage. This gives it considerable value, since in the first stage the indications for prostatectomy are not imperative, although the annoying symptoms may continue for years, disturbing the patient's sleep and thus weakening his general health. The choice of remedies for this is limited and uncertain. During the stage of chronic retention, prostatectomy is the only method, provided the general condition is good.

Zentralblatt für Chirurgie, Leipzig

July 17, 1920, **47**, No. 29

*Felons with Gangrene of the Finger Tip. H. Burckhardt.—p. 882.
Transplantation of Tendons for Radial Paralysis. W. Krause.—p. 884.
Metal Device to Aid in Tamponing Cavities. V. E. Mertens.—p. 889.

Felons Accompanied by Gangrene of the Finger Tip.—Burkhardt reports five cases of felon in which black gangrene developed at the end of the finger, caused apparently by interruption of the blood circulation through the afferent arteries. The black color of the necrosis indicated reflux of blood from the veins, or at least that the blood had not been fully expelled from the capillaries. This interruption is doubtless occasioned by thrombosis. It is possible that the division of an artery through operative intervention sometimes cuts off the blood supply of the finger tip, which, therefore, we should take into account when making incisions. Furthermore, the compression resulting at the site of inflammation may possibly hamper the blood flow to the finger tip to such an extent as to cause gangrene though no actual blocking of the arteries has occurred. None of the cases had been treated by the incision at the end of the finger, which has been recommended to start up the sluggish circulation with such inflammatory processes. If this had been done when the panaris was at its height, the gangrene might have been averted.

Zentralblatt für Gynäkologie, Leipzig

July 24, 1920, **44**, No. 30

*Fåhræus' Sedimentation Pregnancy Test. G. Linzenmeier.—p. 816.
*Diphtheria Bacilli in Parturients and the Newborn. Wauschkuhn.—p. 820.
Inhalation of Oxygen in Asphyxia Neonatorum. F. Engelmann.—p. 824.
Technic for Laminaria Tents. M. Linnartz.—p. 825.

Fåhraeus' Blood Test for Pregnancy.—This sedimentation test was described in THE JOURNAL June 15, 1919, p. 1900. Linzenmeier applied it to more than 300 specimens of blood. In ascertaining the normal rate of sedimentation of the corpuscles in the blood of nonpregnant women, he found that from five to six hours were required before the corpuscles had settled sufficiently to leave a plasma column in the sedimentation tube 18 mm. deep, which is the uniform standard he adopted for purposes of comparison. There was considerable variation in time, and in one isolated case nearly ten hours were required. Sedimentation time in men was much longer than in women. During and shortly after the menstrual period the time was reduced by from one to two hours. Of 100 pregnant women examined in their homes during the seventh to the tenth month of pregnancy, he discovered a sedimentation time of less than two hours in every case except one. In a small number examined during the fourth, fifth and sixth month the time never exceeded two hours. During the last three months of pregnancy, sedimentation occurred in fifty minutes. But this change in sedimentation time does not appear before the fourth month, and rapid sedimentation of red corpuscles is not a specific reaction for pregnancy, since it occurs also in all conditions associated with inflammation and fever, as Fåhraeus himself stated. Linzenmeier found the most rapid sedimentation in exudative processes, with high fever; especially with adnexa tumors, parametritis and peritonitis; in such cases sedimentation may take place in from eight to ten minutes. He discusses from various standpoints the electrical theory proposed by Fåhraeus to explain the accelerated sedimentation of corpuscles.

Diphtheria Bacilli in Parturients and the New-Born.—Wauschkuhn refers to the investigations of Läwen and Reinhardt on "skin carriers." They examined the tissues adjoining wounds containing diphtheria bacilli and found, a hand's breadth or more removed from these, diphtheria bacilli in 19 out of 107 cases. Wauschkuhn made smears from the tonsils, breasts and vagina of 200 parturients in the delivery room and from the nose of the 200 infants within one to three hours after birth. Of the 800 smears so taken, suspicious bacilli were discovered in 89. Of the 35 smears giving unmistakably positive results, 26 were from the mothers and 4 from infants. In 21 mothers the diphtheria bacilli were found in only one smear (tonsils 9, breasts 6, vagina 6); in one mother in two smears (tonsils and vagina); in 2 mothers in the vagina and in the nasal smear of their infants; in 2 mothers in 3 smears (tonsils, breasts and vagina) and in the nasal smear of their infants. In all 4 mothers of the 4 infants in whom genuine diphtheria bacilli were found in the nasal secretion immediately after birth, genuine diphtheria bacilli were present in the vagina. There were no symptoms of diphtheria in the 26 mothers, but 8 of the infants developed "snuffles," some with slight fever, and they were isolated and treated with antitoxin, as also the infants of the others with diphtheria bacilli in the vagina.

Zentralblatt für innere Medizin, Leipzig

June 19, 1920, **41**, No. 25

*Effect of Calcium on Hydrops and Nephritis. W. Hülse.—p. 441.

Effect of Calcium Salts on Hydrops and Nephritis.—Hülse reports that in dealing with a large number of edema patients during the war he found calcium chlorid very valuable in the treatment of dropsical conditions. Although used at first in combating only one of the symptoms of nephritis—the anasarca—it soon became evident that the renal process itself was often very favorably influenced. Eight case histories are given, to which many more could be added, which Hülse thinks give abundant evidence of the value of calcium chlorid. There were a few cases in which the effect was not so marked, but there was scarcely a case that was not benefited somewhat. Occasionally the effect of the calcium chlorid was increased by adding other neutral salts (magnesium, urea). He ascribes the pathogenesis of edema to some modification of the colloids, thus exculpating the kidneys.

Mededeel. v. d. Burg. Geneesk. Dienst, Neth. Indies

1920, No. 1. Parallel Dutch-English edition.

*Coconut Press Cake as Food for Man. B. C. P. Jansen.—p. 3.
*Vitamin Content of Extract of Rice Bran. B. C. P. Jansen.—p. 23.
Respiratory Quotient of Pigeons Fed on Polished Rice. B. C. P. Jansen and R. M. M. Mangkoewinoto.—p. 51.
Bacteriologic Research on Septic Tanks. J. Groenewege.—p. 67.

Coconut Press Cake as Food for Man.—Jansen reports from the medical laboratory of the public health service of the Netherlands Indies that his tests with house rats and with three human subjects have demonstrated that coconut press cake contains complete proteins, and that they are absorbed sufficiently by the digestive tract. The press cake is the residue after the oil has been squeezed out of the coconut meat. The diet of the tropics might be advantageously supplemented with this, he suggests, in times of dearth. The metabolic findings showed that the protein was assimilated, and none of the three human subjects seemed to have any unpleasant consequences from the diet of press cake and rice, while the growth of the rats was satisfactory. [In this country coconut press cake is used for feeding cattle; the expressed oil is the basis of a certain form of margarin. Recent experiments with white rats apparently confirmed their normal growth on it.—ED.]

Vitamin Content of Rice Bran.—Jansen advises to use birds more susceptible than pigeons to the lack of the antiberiberi vitamin, to test the content in rice bran. A small bird, the *munia maja*, is much more convenient for a number of reasons. A large number can be kept in one cage and weighed all together, and the polyneuritis is as characteristic as with pigeons, and develops sooner, in twelve days.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

March 29, 1920, **1**, No. 12

*Blood Pressure in Pulmonary Tuberculosis. P. J. de Bloeme.—p. 943.
The Prognosis with Mental Disease. H. J. M. Schade.—p. 950.
Treatment of Fracture of Neck of Femur. S. M. Kropveld.—p. 958.
Adulterated Neosalvarsan. C. J. v. L. Hulsebosch.—p. 961.

The Blood Pressure in Pulmonary Tuberculosis.—De Bloeme records the pressure findings in 500 cases, classified according to Turban. In stage 1 the pressure was normal in 87.7 per cent. of the men; below normal in 4 per cent. and above normal in 6.7 per cent. In the second stage the figures were, respectively, 86, 9.6 and 5.1 per cent. In the third stage, 75.1, 17.7 and 4.8 per cent. In the women patients it was below normal in stage 1 in 2.7 per cent. and above normal in 6.8 per cent. In the second stage, below 3.1, and above 3.1 per cent. In the third stage, below in 10.8 and above in 6.6 per cent. Hemoptysis did not seem to be inevitably connected with high blood pressure. The cases with a low blood pressure of 80 to 100 all terminated fatally in less than a year. The discovery in men of a blood pressure of 100 to 110 mm. is a convenient and reliable sign of the gravity of their case which otherwise might not be suspected. If the pressure keeps low when the patient seems to be thriving otherwise, there is greater danger of a relapse.

Hygiea, Stockholm

Aug. 31, 1920, **82**, No. 16

*Vegetative System as Factor in Ulcer. L. Wolff.—p. 513.
Gonococcus Perirectal Abscess. J. Almkvist.—p. 529.

Disturbance in Autonomic Nervous System as Factor in Disease.—Wolff refers particularly to gastric and duodenal ulcer as a manifestation of overactivity of the vagus nervous system, saying that Gundelfinger has reported multiple signs of vagotony in 22 per cent. of 1,200 cases, and Bergmann found very few exceptions in which there was nothing to indicate a loss of balance between the sympathetic and the vagus systems. In Petrén and Thorling's 18 cases tested, 8 responded exclusively to pilocarpin and one exclusively to epinephrin, while 5 responded alike to both. Wolff's own experience testifies that many of the symptoms for which we regard the ulcer as responsible—the pains, gastrospasm, hypersecretion and contraction of the mucous membrane and of its blood vessels, with the consequent erosions and ulcerations which cannot heal so long as the spasmodic contraction lasts and the gastric juice flows over them—all of these might well be explained by overirritability of the vagus innervation. This assumption has more than theoretical interest as it suggests treating gastric and duodenal ulcer with a systematic course of atropin. Von Amstel has reported brilliant results in 50 cases, given 0.5 or 1 mg. of atropin sulphate by the mouth or subcutaneously, kept up daily for ten weeks. A few patients showed slight, transient, toxic action, but in all the pains were arrested, the secretion became reduced, motor function regulated and the pylorospasm subsided, including cases in which the spasm had been so severe that it had simulated a tumor. The usual ulcer treatment was given in addition, but this was of slight or no benefit in the cases without the atropin. Wolff adds that calcium treatment and electricity might usefully supplement the belladonna, and some other drug may yet be found even more potent to reduce the overactivity of the autonomic system.

Norsk Magazin for Lægevidenskaben, Christiania

September, 1920, **81**, No. 9

*Diphtheria of the Umbilicus. T. Schønfelder.—p. 857.
*Comparison of Blood Sugar Tests. H. F. Høst and R. Hatlehol.—p. 877.
*Stenosis at the Bend of the Colon. S. Widerøe.—p. 890.
*Case of Hysteric Scoliosis. P. Bull.—p. 900.
*Ganglion Neuroma in the Neck. L. Sommerfelt.—p. 911.

Diphtheria of the Umbilicus.—Schønfelder cites Snell's compilation (1919) of the cases of diphtheria of the umbilicus on record, and states that at the contagious disease hospital at Christiania diphtheria bacilli were found in the umbilicus of an infant cadaver. The mother also had diphtheria, and 130 other patients were received from the women's clinic in the following seven months. In thirty-three of the infants diphtheria bacilli were found in the umbilicus. He warns that diphtheria of the umbilicus closely resembles the ordinary processes found in the umbilicus, and when there is diphtheria in the environment the slightest sign of anything pathologic in the umbilicus should lead to search for the bacilli and antitoxin treatment. The course is mild, without fever, and the general health does not seem to be impaired as a rule. Local membrane formation need not be expected. The bacilli were found also in the nose in two infants and in both nose and throat in three. Broer has recently reported finding diphtheria bacilli in several new-born babes and in smears from the vagina of seven of thirty parturients.

The Sugar Content of the Blood.—Four different technics were applied to determine the sugar content of the blood in thirty-five specimens from twenty-eight patients and healthy controls, and the parallel findings are tabulated. The normal level seems to be 0.11 per cent. with the Bang, Hagedorn and Folin tests but the Myers and Bailey modification of the Lewis and Benedict method gave higher figures than this in three cases, up to 0.142 in one instance.

Stenosis at the Colon Flexures.—Widerøe reports three cases of chronic mild stenosis at a bend of the colon, and insists that a saline purge, petrolatum, and proper diet would cure many cases now sent to the surgeon. Appendicectomy gives only transient if any relief. The clinical picture had been that of recurring appendicitis except for the almost normal temperature and the soft abdominal walls.

Case of Hysteric Scoliosis.—Bull's patient was a young woman with typical hysteric claudication and hysteric scoliosis which resisted five months of treatment in the service for nervous diseases after a month's stay in the surgical ward. The family had great faith in a certain quack, and under his directions—without his seeing the patient—she was cured in a week. There is still a little pain in the spine but the family attribute this to the "experimenting" that was done with her at the hospital. The quack's directions were to take a warm footbath with salt and mustard every evening for a week, and then three times a week; to refrain from meat and eat only fish and milk dishes, and to drink or take by the spoonful infusions of three specified herbs.

Ganglion Neuroma.—The neuroma was removed from the neck of a woman of 36. It had developed in the course of ten years. No effect from roentgen treatment had been noted.

Ugeskrift for Læger, Copenhagen

Aug. 12, 1920, **82**, No. 33

*Modern Research on Biology of Gonads. K. Sand.—p. 1045.

Experimental Biology of Sexual Glands.—Sand has done considerable experimental work in this line himself but his article is a review of what has been accomplished by others, and especially Steinach's recent work on the puberty gland, described p. 617 and also in the Berlin Letter, p. 755. Steinach urges the foundation of institutes for experimental biology and experimental research on old age, and Sand remarks that whether Steinach's conclusions are accepted or not, his work will give impetus to intensive research the world around. The process of growing old is more complicated in women than in men, and access to the ovaries requires a laparotomy, but Steinach thinks that the tissue producing the sexual hormone might be influenced by the roentgen ray or by autotransplantation or transplantation of young ovaries. Holzknecht's recent reexamination of women who had been treated at some time with the roentgen rays for uterine myomas yielded results which Steinach regards as promising for the applicability of this method. Sand's review of the whole history of "sexual research," confirms anew the wonderful potency of this hormone tissue or puberty gland as evidenced by the years of experimental research on fowls, etc.